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EDITORS

ALEXANDER LAMBERT, M.D.

S. S. GOLDWATER, M.D.

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MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians
& for Others Interested in Administrative, Industrial
& Social Health Problems

Editors ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., and JOHN A. LAPP, LL.D.

Managing Editor JOHN A. LAPP

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NOTES AND COMMENT

THE PURPOSE OF MODERN MEDICINE

MODERN MEDICINE makes its first appearance with this issue. The magazine is not merely "one more medical journal." It is rather a pioneer in a new era of medicine; and, while it breaks in no way with the splendid traditions of the profession, its concern is primarily along the lines of thought which will characterize leadership among physicians and surgeons in the new age now upon us.

The new age in medicine—what is it? The answer is that we must think of medicine today as including everything that will make people fit for service. To be fit for service is to be fit to do our individual part; to be fit as a factor physically, mentally, and spiritually in a great nation's progress. It means to be fit for life. In all the history of the world no such tremendous responsibility was ever before put upon a profession. Are the doctors prepared? Do they hear the call? Are they ready for action?

Let us look a little further. The war made a nation of us. We are an idealistic nation. The whole world trusts our idealism. We are happy, proud of ourselves, and prosperous. Almost overnight we have learned that happiness and prosperity live together; that to be well is the basis of happiness and prosperity; and that, somehow, all have a right to be well, just as soldiers and sailors in military service not only have a right to be well, but *must* be well in so far as the whole science of medicine, including sanitation, can keep them. Henceforward the practice of medicine in civil life must reckon with this conception.

One outcome of the situation is certain. Either the doctors will meet the new demand with ade-

quate intelligence and force, or changes will be brought about through swift, ill-advised, and perhaps prejudiced legislation. In the former case the profession will rise to even a more honored stratum of society; in the latter case—but let us not talk about that. MODERN MEDICINE believes that the doctors will rise to the need; that they have the wisdom and initiative to meet their inescapable responsibilities. MODERN MEDICINE is the clearing house for progress of this sort. Its field is not only the narrow confines of the art and science of medicine, but it has to do also with the application to public welfare of the whole knowledge of medicine and of sanitation. MODERN MEDICINE asks the constructive cooperation of the profession in order that its pages be pages of leadership, pages of *finding out* and *learning how* among world problems, which are medical problems, in these rudderless times.

The age in which we live is generous, but it also makes great demands. Industries of every description want their workers happy and productive. Fathers and mothers want the health of their children protected, in school, at play, and at home. They want their own health safeguarded. Municipalities and states are awakening to new conceptions along these lines. Laws are being proposed and enacted. And yet, for the very reason that physicians are devoted to the welfare of their patients, they are not keeping pace with these new demands. They are out of the main social currents, caring for the sick. All honor to men giving such service; but, looking forward, there is big work to do. To help in a worthy fashion is the primary intent in the minds of the editors.

THE RETURNING SOLDIERS

FOUR million men will soon have been returned to their homes after service in the army and navy. These men have been for months or years living a thoroughly organized group life. They have eaten and slept regularly; taken exercise and done work consistently; been cared for systematically; had medical oversight in sickness and in health; and have been scientifically clothed, shod, fed, and trained.

What does their return mean to their physical well being? Each one might well ask himself the question whether the standards of healthful living set for him in the army may be sustained in private life. The community might well ask the question whether those standards may not be at least approximated in the daily life of the people at all times, and particularly at this time when 4,000,000 potential missionaries of health are scattering to the four corners of the country.

That there will be a reaction from the regularity of military discipline need not be doubted. Men who have risen at the reveille and retired at taps for some months will welcome the release, and they will tend to revert to the irregularity of their former life. Likewise, men who have had a set diet will revel in the free choice of food and drink as a sport of freedom. They can, however, scarcely forget the joy of vigorous life and that regularity was the basis of their vigor. It would be a strange evidence of human perversity if the lessons of balanced and regular diet, recreative work and sleep were forgotten by the majority of the men.

It is reasonably certain that in some directions the experience of the war will be preserved. Comfortable clothes and shoes, determined by expert advice, will hardly be exchanged for the dictates of mere fashion and the whim of manufacturers. Shoes will be made to fit the feet and will not be a mold to shape the feet. Clothes designed for health and warmth will be better understood by hundreds of thousands.

In another direction the impress of the army life cannot be effaced. The men have grown accustomed to preventive medicine. Physicians have been on the job to keep men well rather than to cure them when sick. To many this was the first experience with the physician's work in the rôle of prevention. They could not help but see the advantage of applying the ounce of prevention. They cannot afford to forget.

Then there is the care of the teeth, and the work of the army and navy dentists. Defective teeth constituted one of the principal causes of rejection in the draft. Defective teeth were also often the sources of origin of other defects. Men

have now discovered the importance of good teeth to health and the lesson will not be lost.

The Government has adopted the wise policy of retaining men in the service or in the hospitals until they are physically cured so far as is possible. There will be no spread of contagion such as followed demobilization in other wars. The value of health is being impressed in a variety of ways, chief of which is the importance which the army and navy attach to physical fitness as a requirement for discharge. The belief in physical preparedness pervaded to a considerable extent the whole population and it may be confidently expected that in the main the results will be good, although we shall probably see many examples of individual deterioration as a result of the reaction from a disciplined routine of life.

PREPAREDNESS AGAINST INFLUENZA

THE epidemic of influenza which has just run its course and even yet lurks among us in its milder forms has exacted a fearful toll in life and health. On account of the faulty reports as to the cause of death we shall probably never know the exact number of fatalities for which it has been directly responsible.

Warned for some months in advance of its approach, we were quite unprepared when it broke upon us in all its fury. Our hospital and nursing facilities were at once taxed beyond capacity, and methods of prophylaxis were, as a general rule, organized only after the disease reached a community and not before. Our research laboratories for the most part got under way their investigations after the epidemic had well nigh run its course. Even the technic of culturing the influenza bacillus had to be learned anew and the difficulties mastered. When at last the workers had become oriented and had their plans made for investigations along new lines and with more modern methods, the opportunity was gone—the epidemic had passed. The clinicians were equally unprepared. An appreciation of the fatality of the pneumonia, the diagnostic significance of the abundant fine crackling râle, the futility of the usual drug therapy, including that of the coal tar products, all had to be relearned.

It might be argued that the epidemic came upon us at a most unfortunate time; that the ranks of our civilian physicians were much depleted; that our laboratory organizations were sadly disrupted. Far outweighing these disadvantages, it would seem, is the fact that several million of our men were gathered together in orderly arrangement, under discipline, and with facilities for medical observations of a systematic

kind distinctly superior on the average to anything on the same scale in civil life. No, we should not seek for extenuating circumstances; we should face the facts. We were entirely unprepared. The disease, though it has swept over the world many times in similar epidemics during the past few centuries, was to our generation of physicians something entirely new. We were astonished, overwhelmed.

Shall the lesson pass unheeded? All the history of the past teaches us that another epidemic is to come in perhaps twenty or forty, or who knows how many years. The toll in life, if our population increases in the expected ratio, may be little short of a million. Would it not be wise to prepare to meet the problem now? Is it not possible to establish by endowment or otherwise one or several well equipped centers for the study of the disease? Here could be gathered all available information on the subject; methods of combating the infection could be studied and elaborated. Investigations into the etiology could be kept under way—if indeed such a thing is possible when the disease is not epidemic—and if this is not possible every means toward the fullest utilization of the next epidemic for intensive study could be kept constantly mobilized.

We have in the past spent huge sums in preparation for the eventuality of war; we have at much cost constructed arms and armament of all sort which have become obsolete without seeing use; men have been trained and grown old in service without seeing battle. We have before us the glorious hope of no more war and of no more need of preparedness for war. Can we not turn some part of the gigantic effort which we have been wont to expend in the cause of war into new channels? Can we not prepare for the problems of peace even though those problems may not arise again during our own lifetime?

HEALTH AND NATIONAL EFFICIENCY

THE health of a people determines their power as a nation. There is no other asset so important in national well-being as physical strength, equal to the contests of peace and war. The individual cannot succeed without physical power; industry will fail in the competition of the world without it; and nations will remain backward or will be destroyed by its insufficiency.

"The most valuable resource of any country," says Prof. Thomas Nixon Carver, "is its fund of human energy, that is, the working power, both mental and physical, of its people. It is safe to say that any capable race of men who will conserve, economize and utilize that fund

will be able not only to extract a living but actually to prosper in the midst of poor natural surroundings. On the other hand, if they fail to economize their fund of energy, if they waste and dissipate it, they will certainly decay in the midst of the richest geographical and material resources."

To meet this vital national need for health we have depended largely upon the individual himself. Each man has been expected to provide for his own medical care on an individualistic basis. The physician sold his services to the individual. The public merely gave meager protection against contagious diseases and supplied medical charity to the dependent. Disease among the independent, self-supporting people has been largely an individual matter between the man and his physician. Adequate service for the prevention as well as the cure of disease has not been possible under such conditions. The answer to the problem on the part of physicians is being made through organized, or group practice, and on the part of the public by providing hospitals, dispensaries, and clinics and the development of public health work.

Attention to the tendencies in public health work and in medical practice will make the new developments clear. Public health work began as a police protection against the spread of contagious diseases. It continued to be that for a long time and, even at present, the principal motive is the same in the greater part of the country. The weapons which were used were the pest house and the quarantine. We still protect against contagion, but we go farther back to prevent original causes. We also go forward into the field to prevent disease of all kind; to educate the people in health practice; to train physicians, nurses and sanitarians as well as to treat the sick. The hospitals, dispensaries, clinics, public health nurses, medical supervisors of schools, industrial physicians, laboratories, and free medicines, have brought health service into the realm of medical practice. At the same time medical practice has become more and more preventive in character. More physicians than formerly are engaged in keeping the people well. The physician is coming to treat the man rather than the disease; and to treat the man requires that the physician go behind the immediate disease to look for the ultimate causes in the life and environment of his patient. In the broadened stream of medical science, the physician has found the necessity for specialization, and the specialists have found the necessity for coordinating their specialties into a unitary practice through group diagnosis and treatment.

However we look at the matter, whether from

the standpoint of the individual, the physician, or the public, we find that the tendency is toward the prevention and treatment of disease as a vast social service. The ultimate end is social health and national welfare.

That we have occasion to be disturbed about present conditions will be clearly shown in the statement of the problem of sickness:

The loss from sickness and disability among the people of this country is enormous. All the evidence goes to show that every worker loses about 9 days on the average every year. Thirty million workers lose, therefore, 270,000,000 days in a year, which amounts to \$540,000,000 at \$2.00 a day. The cost of medical care at present amounts to an average of about \$30.00 to \$35.00 per family every year. The 25,000,000 families in the country spend, therefore, \$750,000,000 to \$875,000,000 for medical service, mostly curative. To this should be added \$150,000,000 expended for patent medicine. The public spends \$70,000,000 for state institutions for the care of the insane, epileptic, feeble-minded and other defectives, and untold amounts for free service by hospitals, dispensaries and physicians. Fully 35 per cent of all the enormous amounts expended in charitable relief, public and private, is due to sickness, while an equal amount of old age dependency is due to the same cause. The total cost in dollars and cents is simply astounding.

The amount of money invested in all kinds of equipment for the care of the sick would float a good sized Liberty Loan. The investment includes asylums, hospitals, dispensaries, practitioners' offices, medical and dental schools, supply factories, laboratories and public health equipment. It is obvious that the problem is one of great economic importance, to say nothing of the human aspects of pain and suffering.

It is proper to raise the question and discuss it in season and out, whether the vast service of medical care and health protection required by a problem of these proportions is organized efficiently to promote health and prevent disease, and whether the existing medical knowledge and skill in the country are made to function fully for the high aims of national efficiency.

DISEASE AND WOUNDS IN THE WAR

SCIENCE made the world war deadlier than any previous war, but medical skill restored the balance. The instruments of war were more destructive than ever, but medical science was more reconstructive than ever. More men were killed outright, but fewer died from infections and neglected wounds, and fewer from the rav-

ages of disease in proportion to numbers. Foresight and sanitation prevented contagion.

The compiled figures on pensions by the English Ministry of Pensions throw much light on the relative distribution of disease and wounds in the great war. While this war has been a triumph for the physician in the conquest of disease in the army, yet a majority of the pensions granted down to September 1, 1918, were granted on account of disease.

Out of a total of 421,877 pensions granted, tuberculosis and chest complaints were responsible for 47,078 or 11.2 per cent; rheumatism for 27,424, or 6.5 per cent; heart disease 41,699 or 9.9 per cent; nervous diseases 25,165 or 6 per cent; epilepsy 4,257 or 1 per cent; miscellaneous diseases, including Bright's disease, debility, ulcer of the stomach, varicocele, enteric and malarial, spinal, appendiceal, amounted to 81,381 or 19.3 per cent.

Altogether the number of persons pensioned on account of wounds was 42 per cent of the total as against 58 per cent on account of disease.

The data of American experience is still meager, but reports from the Federal Board for Vocational Education indicate that of the 7,710 cases dealt with up to Jan. 31, 1919, by far the larger portion was due to disease. Tuberculosis was responsible for 2,791 cases or 36.2 per cent; heart disease for 843 cases or 10.9 per cent; nervous diseases and shell shock 294 cases or 3.9 per cent; insanity 318 cases, or 4 per cent; other diseases 2,291 or 29.7 per cent. The total number of cases on account of wounds was 915 or 12 per cent.

The short duration of American participation in the actual fighting, and the large number of men in camps make it probable that disease will, by far, exceed wounds as causes of disability.

The contrast with previous wars is striking. Our Civil War produced 309,790 casualties from wounds and disease, of which 110,070 were on account of wounds and 199,720 on account of disease. Epidemics persisted and caused a heavy drain upon the man-power of both armies.

Figures are not available to show the disabilities other than death respectively by disease and battle wounds, but all the evidence indicates that disease was the most powerful factor in creating disabilities. This was decidedly true of the Spanish-American War, in which large numbers were permanently broken in health. Diseases which wrecked the lives of thousands in 1898 were entirely conquered in the armies of the fighting nations in the world war.

We trust that the achievements of medicine in the war will be completely and popularly set forth in the near future for the stimulus it will give to preventive medicine.

THE CARE OF THE SICK IN THE UNITED STATES IN 1919

BY S. S. GOLDWATER, M.D., DIRECTOR, MOUNT SINAI HOSPITAL, NEW YORK, FORMER CONSULTANT ON HEALTH AND HOSPITALS TO THE BOARD OF ESTIMATE AND APPORTIONMENT OF THE CITY OF NEW YORK

FRENCH Government observers, impressed by the work done by various American medical agencies in France during the war, have recently been sent to this country for the purpose of studying our methods and institutions for the care of the sick. In view of the immense number of factors involved, one wonders to what extent these foreign visitors have been able, in the course of their brief inquiries, to form any adequate idea of the manner in which our sick are really cared for in and out of institutions.

Any serious study of the problem of the care of the sick must necessarily begin with their enumeration and classification, a task which, so far as is known, no agency, public or private, has ever had the hardihood or the opportunity to undertake on a nation-wide scale. What such a complete enumeration and classification would reveal may be inferred from statistics that have been compiled in the course of local investigations.

The Extent of Sickness

Inquiries into the prevalence of disease may concern themselves first, with sickness of a grade which impairs industrial and social efficiency, and second, with sickness of a lighter grade, which does not appreciably or immediately affect the ability of the individual to carry on his work or to maintain his normal social relations and activities. The extent of sickness of the latter grade is ascertained only with difficulty.

Throwing light upon the prevalence of sickness of a more serious character, there are the official reports of notifiable communicable and preventable disease, and, apart from such reports, sickness censuses of whole populations or of population groups. Among the records available are those of fraternal societies, health and accident insurance organizations, industrial and other benefit funds, and a few scattered community sickness censuses, notably those conducted in Boston, Trenton, Rochester, and elsewhere, under

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the auspices of the Metropolitan Life Insurance Company; in certain Manhattan districts by the health department in the city of New York; the Dutchess County survey directed by the New York State Charities Aid Association; and the South Framingham community studies.

Statistics from both foreign and domestic sources indicate that in a modern industrial population there is an average of from six to ten

days of acute illness for each worker. Other studies have shown that in American communities that are liberally provided with hospitals, there are at any given time approximately ten persons acutely sick for each person undergoing hospital treatment. On a basis of ten days' acute illness per person per annum, New York City, with its population of approximately 5,500,000, would have about 150,000 sick daily. In the general hospitals of New York City (leaving out of the calculation hospitals for the insane and institutions caring for chronic cases) there are under treatment in normal times about 15,000 patients or one in ten of the city's 150,000 sick.

In a survey in a tenement district conducted by the New York City Department of Health in February, 1914, a sickness rate of 2.4 per cent was established, which, applied to the city as a whole, would represent approximately 130,000 current serious cases. The health department's studies show that the cases of sickness included in the district census just referred to were distributed as to treatment in the following manner:

Receiving treatment in dispensaries.....	35%
Receiving treatment in hospitals.....	10%
Treatment by private physicians.....	34%
Self-treatment and not treated.....	21%

So far as hospital and dispensary activities are concerned, the figures established in this local survey by the department of health are probably fairly representative of the conditions in the city of New York as a whole. In this study it was found that approximately 35 per cent of all of the

incapacitated sick were undergoing dispensary treatment. If the same sickness rate and the same rate of dispensary attendance rate held for the entire city, there would be 127,000 sick in the city, of whom about 45,000 would be registered at dispensaries. The actual or recorded dispensary attendance in New York City is about 15,000 per dispensary day (Sundays and holidays are excluded from this calculation) and, inasmuch as it has been shown that each registered dispensary patient attends approximately three times, there are in the dispensaries of New York City at any given time approximately 45,000 registered cases. In Boston, with a population equal to about one-seventh of the population of New York, dispensary attendance is about 3,500 for each day in the year, excluding Sundays and holidays.

Neglected Sickness

The extent to which serious sickness is neglected is just beginning to be appreciated. Various community studies show from 21 to 40 per cent of uncared-for illness (the actual figures obtained by investigation in New York are 21 per cent, for Dutchess County 26 per cent, Boston 28 per cent, Rochester 40 per cent). Physical examinations in the public schools and among adult groups reveal a wide prevalence of morbid conditions which call for attention, but of which no cognizance is taken in ordinary sickness surveys, which deal only with obvious, declared, or admitted illness. In a "medical examination drive" in South Framingham, which had for its object the disclosure of unrecognized cases of illness as well as the enumeration and classification of known cases, 3,456 out of 4,489 persons examined, or 77 per cent, showed some physical disorder or defect requiring medical attention. In a previous sickness census among the same group the number of sick declarants was only one-twelfth of the number found in the course of the medical examination drive to be in actual need of medical attention. The significance of these figures might not have been understood by the general public two years ago, but, since the beginning of the war, the people have been greatly enlightened by the widely advertised findings of draft boards and army doctors in the examination of military registrants and recruits.

With the gradual extension of the system of periodic physical examinations now carried on by various organizations in industrial and mercantile establishments, among groups of civil employees, among pupil nurses and other hospital workers, among children attending public school, and even among infants, a vast amount of information is being accumulated relating to phys-

ical defects and mild forms of disease, and this rapidly accumulating fund of facts will be of enormous benefit to the people when it has been properly digested and its lessons have been intelligently applied by legislatures, public health administrators, industrial managers, hospital boards, schools of medicine and of nursing, private physicians, welfare organizations, and the public.

Not far removed from the sheer neglect of sickness is self-diagnosis and self-treatment, practiced chiefly at the behest and under the dubious guidance of the makers and vendors of patent and proprietary medicines. It would be rash to assume that this traffic can be completely destroyed or eradicated. Misrepresentation of the character of secret remedies is far less flagrant than was the case ten years ago. For the progress that has been made credit is due to the educational activities of the United States Public Health Service and of state and local departments of health, to Congress for the passage of a law which makes demonstrable misrepresentation of the therapeutic effects of a nostrum a criminal act, to the Bureau of Chemistry of the Department of Agriculture for the active and unremitting prosecution of violators of this law, to the enlightened government of the Philippine Islands for banishing secret nostrums altogether, and to the New York City Department of Health for offering vendors in New York City the option of frank and honest labeling or, in lieu thereof, the registration of secret formulas with the department. It is true that the New York ordinance has been declared unconstitutional by the State Court of Appeals, but in rendering its decision the court very significantly expressed the opinion that the enactment of an ordinance of the general character of the one in question was entirely within the "police power" which the health department exercises, and pointed out how, by a slight amendment, the Court's objection to the present ordinance, which was purely technical, could be overcome.

The Private Practitioner

Turning from the neglected to the attended sick, the observer may well be appalled by the difficulty of the task of making a comprehensive survey of so wide and varied a field. The present article will attempt nothing but a rough enumeration of the instrumentalities concerned in the care of the sick both in and apart from institutions. Here and there a word may be admitted concerning the influences by which such instrumentalities are moulded and their effectiveness determined.

Obviously, the most important agency in the care of the sick apart from institutions is the private practitioner. In the New York census, to which reference has already been made, it was found that of the total number of sick declarants in the district under investigation, 45 per cent were being treated in hospitals or at dispensaries, leaving 55 per cent under domiciliary or private treatment. Of those at home some were neglected cases, but approximately two-thirds were undergoing treatment by private physicians. In localities in which hospital and dispensary facilities are less plentiful than in New York, a much larger proportion of the known sick are dependent for their care upon private physicians.

The geographic distribution of physicians shows marked variations. In some states, we find almost one physician to the square mile; in others, more sparsely settled, there is one physician to five hundred square miles. In the whole United States, there is said to be one practicing physician to about seven hundred persons. The ratio of physicians is now diminishing, for the number removed from practice annually by superannuation, death, change of occupation, and other causes is over five thousand, while the annual number of medical graduates is now only about three thousand.

For statistical purposes it may suffice to say that a certain percentage of the sick are attended by private physicians. The thoughtful investigator may be tempted to go a step further and inquire into the character of the treatment given; if he wishes to be thorough in his investigation, he will have to go still further and consider the education of the private practitioner. The content and method of medical education have undergone very decided improvement within the memory of man, and so far as regularly educated physicians are concerned, it might be unfair to quote the saying of Hippocrates that "physicians are many in title but few in reality." But with many states continuing to recognize such freakish cults as osteopathy, chiropractic, and naturopathy as legitimate forms of medical practice, one is tempted even now to take one's stand with Hippocrates. Even Christian Science probably has as many adherents today as in the time of Mrs. Eddy. The homeopaths, happily for everybody concerned, are gradually abandoning dogma and are aligning themselves with open-minded physicians who seek constantly to broaden and strengthen the scientific foundations of medical practice. Within the past few months one of the leading homeopathic schools has broken away from its old moorings.

Lodge and Benefit Fund Practice

Medical efficiency is determined by methods of practice as well as by preliminary medical education. The old relationship between a single patient and a single doctor is rapidly giving way to a new relationship, referred to under the term "group practice." There are two kinds of grouping in medical practice today. There may be a grouping of patients in the form of an association or society whose members share the medical services of a physician, or there may be a grouping or combination of doctors representing various branches of medicine, who offer to a single patient the benefits of their combined talent and training.

In lodges or medical benefit associations, one may observe in America (on a voluntary basis, however) some of the elements of that form of compulsory sickness or health insurance which is now a characteristic feature of the social organization of many of the civilized countries of the world, but not yet of the United States. In 1914, there were located in New York City thirty-six trade unions, mutual assessment, stock company, or fraternal society funds, carrying voluntary health insurance. Many of these organizations maintain headquarters in New York City and have branches throughout the country. In New York City alone these thirty-six organizations claimed 170,000 members. Twelve fraternal societies, included in this group, provided medical care; on the other hand, out of eleven trade union funds, only one offered medical care to its members.

State Care

In this country provision by the state for the care of the people in sickness has been almost wholly confined to the establishment of free hospitals and dispensaries, while the domiciliary care of the sick by the state has been limited to the care of the destitute. That a change in this respect is impending is the belief of many. The American Medical Association, in defining standards to which compulsory health insurance should conform in order to do justice to physician and patient, and in appointing a standing committee on social insurance, has virtually conceded that the issue is a practical one in this country. Eight states have appointed official commissions to report on the subject of health insurance, and organized labor, at first hostile, is now advocating in New York state and elsewhere a health insurance bill which, in addition to cash benefits, provides for medical and surgical treatment and nursing attendance for the insured employee and his family, dental care for the insured, and

maternity benefit for working mothers and for the wives of insured men. Employees are to be insured without physical examination, and there is to be free choice of physician.

Industrial Accidents

The care of injured industrial workers under workmen's compensation laws is a subject which might well be treated at length, but which in the present introductory article can only be referred to in passing. The first compensation or industrial accident insurance law to be enacted in the United States was the Maryland law of 1902. In 1910 the movement began to spread rapidly, and by 1913 thirty states had passed compensation laws. At present such legislation exists in thirty-eight states. In many of the states the insurance is optional and private; the first straight compulsory state insurance under a compulsory compensation law was enacted by the state of Washington in 1911. Our interest here is chiefly in the medical or rather the surgical service for which these laws provide. Among the medical profession there is considerable dissatisfaction with the rates that have been arbitrarily fixed as compensation for surgical service, and with the hostile attitude of stock companies which are permitted to carry "compensation" insurance. Unfair treatment has been charged to both sides. The companies are slowly learning that the cheapest treatment is not always the best.

Nursing Care

The physician has been spoken of as the essential factor in the treatment of the sick apart from institutions. A secondary factor of considerable importance is the nurse, who may be the full-fledged graduate of a school supervised by the state, and who may be registered with and, by inference, professionally vouched for by the state educational authorities, or who may be an unregistered nurse, systematically or unsystematically trained, or without any training at all. Registered nursing schools have graduated up to date in the United States nearly one hundred thousand women, of whom about half may still be engaged in nursing practice, the remainder having been lost to the profession through marriage, change of occupation, superannuation, disease, and death. Of new graduates there are perhaps twelve thousand annually. Accurate reports of the number of unregistered nurses are lacking. Nurses are registered by state boards in forty-five states and the District of Columbia; the three states that have no established system of state registration are Arizona, Nevada, and New Mexico.

In the procurement of nurses for duty in patients' homes, registries, commercial and non-commercial, play an important role. Commercial registries are commonly licensed under laws or ordinances which apply to employment agencies of all kinds. A considerable part of the public is at the mercy of commercial registries, and the stricter regulation of such registries has been urged.

Attendants, who occupy a position below the professional nurse in rank, are likewise in the field in large numbers; the legal standardization of the training of attendants is a subject which is at the present moment receiving attention in a number of states.

A bill at present before the Illinois legislature proposes to overcome the present shortage of nurses by establishing an eighteen months' course of training for women, who are to be called "Junior Nurses." A standard curriculum for schools of nursing proper has been proposed by the League for Nursing Education and is widely followed.

In order to provide domiciliary nursing service for the poor, district nursing organizations have been founded and are being generously supported. There are places in which the work of such organizations compares in volume and importance with the work of the local health departments.

Maternity work in the home is shared almost equally in the larger cities by midwives and physicians. In many localities midwives are subjected to little or no supervision or control. In New York, city and state, and in a few other states, health departments have concerned themselves with the education of the midwife and with the supervision of their work in the field. Certain foreign elements in the population show a strong preference for the midwife as against the physician. In teaching centers midwifery is practised by undergraduate medical students working under the supervision of instructors.

Public Health Agencies

In our rapid survey of the care of the sick, we must not lose sight of various public health activities, including the compulsory notification of contagious diseases, the object of which is the quarantining of such cases in their homes or in hospitals. Health department nurses are engaged in home nursing especially in connection with communicable disease, maternity and prenatal work, and the diseases of infancy. Health departments provide diagnostic clinics which often specialize in venereal and occupational diseases and in tuberculosis. The diagnostic laboratories of departments of health constitute an indispensable

aid to private physicians and render a most valuable service to the sick. Public health authorities, furthermore, supply antitoxins and vaccines, and may be credited with millions of successful preventive inoculations against smallpox and typhoid, diphtheria, and possibly poliomyelitis and influenza. The medical inspection of school children is a factor of the first importance in the detection of physical defects and in the early recognition of contagious diseases of childhood. In certain localities school clinics have been established, chiefly for the treatment of diseases of the eye, nose, throat, teeth, and skin. Last but not least among public health institutions is the babies' welfare station; the number of these stations is increasing daily.

In the treatment of injuries and of sudden emergencies the ambulance service comes into play. Various types of ambulance organizations may be found in this country. One form is the service connected with public or private hospitals; another form is that which is under police control. When, in catastrophes, the local medical and hospital service breaks down or fails to measure up to the need, the Civilian Relief Division of the American Red Cross comes into play, together with innumerable first aid societies of a local character.

Dispensaries

The institutional care of the sick includes care in dispensaries and in hospitals. The subject of dispensaries has recently been admirably reviewed by Davis and Warner in their book entitled "Dispensaries, Their Management and Development." Following these writers, we may classify dispensaries as to their medical scope, their relation to other medical institutions, or their public function. In their medical scope, dispensaries are either general, treating all diseases, or special, confined to one or a few specialties; in relation to other medical institutions, dispensaries may be classified as the out-patient departments of hospitals, and as out-patient institutions separate from hospitals; also as teaching and non-teaching, the former making systematic provision for the teaching of medical students, the latter assuming no such function. In their public aspects, some dispensaries are found which devote themselves entirely to clinical medicine, while others lay stress upon prophylaxis. Treatment and prophylaxis are both emphasized in the work of special dispensaries for tuberculosis and venereal diseases. Dental clinics are found in connection with dental colleges, general dispensaries, orthopedic dispensaries, and school clinics. Boston has a huge dental infirmary planned

for the dental treatment of the city's entire school population.

Lack of space forbids a complete analysis or even classification of dispensaries in the present article, but some idea of the extent and importance of the field may be formed when it is stated that in New York City alone, there are twenty-five different kinds of dispensaries to which about a million different persons resort annually for treatment. The number of visits paid by these patients in 1915 was 3,468,190. Dispensary attendance in New York City has been somewhat diminished during the war. One million fourteen thousand patients admitted for treatment in 1915 were arranged as follows:

Medical	21.7%
Surgical	18.5%
Pediatric	4.7%
Gynecologic	7.8%
Genito-urinary and skin.....	9.8%
Neurologic	2.3%
Eye, Ear, Nose and Throat.....	30.0%
Orthopedic	2.8%
Dental	2.4%

There are said to be in the United States today nine hundred general dispensaries and out-patient departments attached to general hospitals, one hundred special dispensaries and out-patient departments, and twelve hundred public health dispensaries.

The public supervision and regulation of dispensaries varies greatly. In certain parts of the country the very existence of dispensaries is ignored by the public authorities, while in other sections laws and ordinances have been most carefully compiled, with a view to the establishment of dispensaries, the protection of dispensaries from abuse, and in some instances, to the protection of dispensary patients from abuses which readily spring up in the absence of high ideals and legal standards. In New York, a dispensary may be established only with the approval of the state board of charities. In Massachusetts, a person or association desiring to conduct a dispensary must apply in writing to the state department of health.

Most dispensaries charge nominal fees; in some the service is wholly gratuitous, and recently "pay clinics," which charge fees that are moderate but sufficient to defray the bare cost of maintenance, including very moderate fees or salaries to the physicians in attendance, have been created in Boston, New York, and elsewhere.

Contributions in aid of dispensaries which are not self-supporting come from the same public and private sources upon which hospitals depend; these sources are classified in the section relating to hospitals.

Dispensaries have been severely and justly criticized for the indifferent character of their equipment and work, but notable improvement in this respect has taken place within the past few years. Standards of equipment, space, and time, and approved methods of organization have been proposed by the Associated Out-Patient Clinics of New York and by individual reformers, with good results. In the past physicians not only were expected to give their services to dispensaries gratuitously, but were asked to work under improper, almost impossible conditions. The better service which they and their patients are receiving today is reflected in the cost of dispensary operation, which in many instances has more than doubled in eight or ten years.

Hospitals

We come now to hospitals which may be classified as (a) public or (b) voluntary or private; or as (a) acute, (b) convalescent, or (c) chronic. The distinction between private and public hospitals is not always perfectly clear because many privately managed hospitals are supported in part by public funds. This is hardly the proper place to argue for or against state or municipal subsidies, but the question of the manner in which such subsidies should be granted is suggested as a subject worthy of the careful thought of the public health administrator and the social student. In Pennsylvania and some other states appropriations have been made without much system, and abuses have sprung up which it has been possible to avoid where appropriations have been carefully restricted and regulated.

The public hospitals in the United States fall into three groups of (a) Federal, (b) state, and (c) municipal and county. Among the medical institutions maintained by the Federal Government are military hospitals in great variety, (these are described in recent reports and bulletins issued from the Surgeon General's office) naval hospitals, and (under the jurisdiction of the United States Public Health Service) hospitals for the merchant marine, quarantine stations, the United States Hygienic Laboratory, and the recently authorized national leprosarium. The Public Health Service is concerned jointly with the health departments of states in the establishment and support of clinics for venereal diseases.

During the war the medical corps of the army was expanded from 500 men to nearly 40,000, and the number of army hospital beds in the United States to more than 100,000. Medical officers are now being discharged from the army at the rate of from 500 to 1,000 per week. The army's

medical work in this country is performed almost wholly by members of the army medical corps, assisted to a slight extent only by "contract surgeons" and by civilian consultants. Nursing in the army hospitals is chiefly in the hands of army nurses who are graduates of civil hospitals, assisted by the enlisted men of the hospital corps. An army school for nurses, experimentally established in 1918, may or may not be continued. The use of nurses' aids or hospital assistants in the army hospitals was authorized during the latter part of 1918. Army nurses and nurses' aids are recruited chiefly through the Red Cross.

The hospitals supported by the states include mainly hospitals and asylums for the insane, psychopathic hospitals, hospitals for the feeble-minded, for the epileptic, for persons addicted to alcohol or narcotic drugs, and institutions for the blind, deaf and dumb, hospitals and sanatoriums for the tuberculous, penal hospitals, and in rare instances, general hospitals. The most important types of hospitals maintained by municipalities and counties are the following: general, chronic, contagious, tuberculosis, leprosy, pellagra, rabies, psychopathic, inebriate, emergency, alms-house infirmaries, and hospitals for ophthalmia and ringworm.

Voluntary or private hospitals may be classified according to the character of their support, as sectarian, non-sectarian, or racial; any of these may be either wholly philanthropic or semiphilanthropic. By far the largest group among the hospitals of a sectarian character are the hospitals of the Roman Catholic Church. "Sectarian" hospitals in the United States are strictly sectarian only in their control. In the application of their benefits and in their medical and nursing administration, nearly all hospitals in the United States are non-sectarian in some degree. Industrial hospitals, established in many instances as first-aid stations or emergency hospitals, have here and there achieved a high standard of excellence as general hospitals.

Hospitals are maintained by trade unions, by fraternal associations or "orders," and by insurance societies. Hospitals and sanatoriums for paying patients exclusively are conducted under medical cooperative proprietorship, under medical or nonmedical individual proprietorship, and by philanthropic organizations.

From the medical standpoint, voluntary hospitals may be broadly classified as "acute" and "chronic." Among the acute hospitals are the general hospitals, some of which assume the function of systematic medical teaching, while others ignore this function. "Staff" or "closed" hospitals are those in which patients are cared for

solely by an appointed staff, and to which medical men not definitely appointed may come only as unofficial visitors. "Open" hospitals are those to which any physician in the community may bring his patients for treatment by himself or under his supervision. In the larger cities and in the East, staff hospitals are favored; in smaller towns and in the West, open hospitals are prevalent. Both staff hospitals and open hospitals provide places for a resident staff of recently graduated physicians or interns, but at present the number of medical graduates is insufficient to fill the places that are available.

Among the more notable types of special hospitals in the acute class are the surgical, gynecological, eye, ear, nose, and throat, gastro-enterological, children's, and maternity. In the United States, hospitals for the care of contagious diseases are for the most part municipal in character, but contagious wards attached to general hospitals are increasing in number very rapidly. In New York City every hospital is required by the department of health to have one or more isolation wards in which contagious cases can be cared for.

Convalescent hospitals and homes may be attached to acute hospitals or may be quite independent. Even in the field of convalescence, medical classification is commencing to take place, and one finds today convalescent hospitals specializing in surgical convalescence, cardiac convalescence, in the treatment of neurotics, and in convalescence following maternity. Convalescent hospitals generally confine themselves to the treatment of either men, women, or children, but convalescent homes in which both sexes and all ages are treated are also known.

Hospitals for the treatment of chronic disorders include those maintained for the benefit of chronic and incurable invalids generally, and those of a special type. Homes for the aged and infirm are akin to and sometimes combined with hospitals for chronic and incurable invalids. The special chronic hospitals, medically classified, are hospitals for the insane, psychopathic hospitals for the near insane; hospitals for the neurologic, epileptic, and diabetic cases; hospitals for the treatment of obesity, tuberculosis, venereal and skin diseases, cancer; hospitals for orthopedic, paralytic, narcotic and alcoholic patients; hospitals or asylums for the blind and deaf; health resorts or sanatoriums; therapeutic institutes for physical therapy generally or for radium treatment; and the so-called preventoriums, designed especially for the constitutional up-building of undernourished children and for the temporary isolation and the development of the powers of re-

sistance of children who are exposed to communicable forms of tuberculosis.

In a compilation completed in 1918, the statistical department of *The Modern Hospital* included 7,158 general and special hospitals, with a total capacity of 657,965 beds. Of this number 542 were hospitals and asylums for the insane, capable of caring for 282,937 patients. The next largest group consists of general hospitals, of which there were said to be 4,716 with a capacity of 263,815 beds. Tuberculosis was credited with 488 hospitals and 38,584 beds; contagious diseases with 164 hospitals (probably an incomplete figure) and 17,324 beds; and ten other principal classes with from 8,000 to 2,000 beds each. The distribution of hospitals and hospital beds is far from uniform. Omitting beds in hospitals for the insane, California has about four times as many beds in proportion to population as Alabama, Massachusetts four times as many, New York nearly four times as many, Pennsylvania three times, Kansas and Virginia about twice as many. The proportions, however, are constantly changing.

We have already glanced at the movement for the improvement of dispensary service. Parallel with this is the movement for the establishment of minimum standards of efficiency and morality or fair play in hospital work, to which notable contributions have been made by the American Medical Association, the American Hospital Association, and the American College of Surgeons directly, and by the Rockefeller and Carnegie foundations indirectly.

Before 1905 social service in connection with hospitals was sporadic, individual, and accidental, "based on a very natural impulse to treat the individual as well as the disease." Since 1905, the need of organized social service adapted specifically to the treatment of disease has been generally recognized, and there have been established in the United States nearly two hundred hospital social-service departments. More than forty institutions are represented in the Hospital Social Service Association of New York City alone.

Cost of Medical Care

An outstanding feature of the situation in this country is the fact that the actual cost of private medical and hospital care is beyond the reach of the great bulk of the people, who are consequently compelled to accept such care either in whole or in part as the free gift of the state or of some philanthropic society and of the medical profession. It is with the greatest reluctance that self-respecting American citizens who are able to pay their way in health turn to philanthropic organi-

zations for relief in time of sickness, and one of the pressing questions of the day is how the hospital needs of this class can best be met. Shall it be assumed that the present economic status of the great majority of the people cannot be altered for the better? If so, is it not incumbent upon the state speedily to organize some system by means of which an adequate medical service will be supported in part, perhaps, by taxation, in part by employers, and in part by the workers themselves? Or, should the medico-economic reformer throw his support to the trade union movement, in an endeavor to secure such a readjustment of wages as will place the whole working population beyond the need of state-regulated, compulsory health insurance or of organized relief in any form whatever in time of sickness?

A Look Ahead

The agencies engaged in the care of the sick in America are legion. Is the service they are rendering all that is desired or that can reasonably be expected? Is the work distributed among the several agencies in due proportion to their material resources and their ability? Should private philanthropy be encouraged to extend its hospital, dispensary, and nursing work, or should it be supplanted by instrumentalities created, supported, and controlled by the state? Leaving out of consideration for the moment foreign countries with their peculiar conditions, traditions, and needs, is it best in our own United States to go on as we have been going, with a minimum of coordination, an almost total absence of community planning, and a maximum of private initiative and endeavor, or is it desirable to provide more coordination and even centralized administration?

President Wilson, to whom an appeal was made as recently as November, 1918, to get behind the movement for the establishment of a national department of health, expressed the opinion that the present was not an opportune time to urge upon Congress the expense and elaboration of such an instrumentality; he did not, however, say, nor has anyone in authority recently said, that the proposal is essentially unsound.

Sooner or later, in all probability, there will be a national department of health. What should be its scope? Should it confine itself to measures for the prevention of disease, or should it consider also the medical needs of the civilian population? Should the department aim chiefly at popular education in hygiene, or should it undertake the control and organization of medical and nursing practice? Should it at least seek to provide adequate medical and nursing service to the population in backward and neglected communities?

These are not academic questions. They are questions which those who are concerned for the efficiency of medical practice and medical administration in this country will seek to answer as a professional duty.

One of the pressing needs of the country today is a scheme of medical administration much broader in scope than any program of health insurance yet proposed. To promise success, such a scheme must, in my opinion, be elastic as well as comprehensive. It must regard the economic needs of the physician as well as the economic status of the patient. Above all, it must recognize the fundamental fact that medicine is a profession, not a trade. To free the physician from the fetters of commercialism and then bind him in the chains of bureaucracy would be a calamity.

In the future, the state may provide the doctor's office, it may guarantee all or part of his income, but it should leave him free to think and to act, to study and to serve.

MALINGERERS IN THE DRAFT

The problem of malingering as it appears in the army draft was tersely summed up by the Provost Marshal General in his second annual report, as follows:

"Malingeringers may be divided into three general groups:

"(a) Real malingeringers with nothing the matter with them, who injure themselves, or make allegations respecting diseases or such conditions as drug taking, or who counterfeit disease with full consciousness and responsibility; all for the purpose of evading military service. Many of these have been coached.

"(b) Psychoneurotics, who are natural complainers and try to get out of every disagreeable thing in life. Perhaps only partially conscious of the nature or the seriousness of what they do and only partly responsible. In many the motives are not persistent. . . .

"(c) Confirmed psychoneurotics with long history of nervous breakdowns and illnesses who behave like class (a), but more persistently, and from whom not much can be expected in the way of reconstruction.

"Men shoot or cut off their fingers or toes, practically always on the right side, to disqualify themselves for service. Sometimes they put their hands under ears for this purpose. Many men have their teeth pulled out. Retention of urine is simulated. Egg albumen is injected into the bladder or put in urine. Glucose is added to urine. Digitalis, thyroid gland preparations, and strophanthus are taken to cause disturbance of the heart, and cantharides to cause albuminuria. The skin is irritated by various substances, which are also injected under it to create abscesses. Various substances are taken to bring about purging. An appearance of hemoptysis may be produced by adding blood, either human or that of animals, to the sputa. Sometimes merely coloring matter is added. Those who can vomit voluntarily what they swallow use the same means to create the appearance of hematemesis. Similarly, coloring matters may be added to the stools. Mechanical and chemical irritants are made use of to cause inflammation about practically all the body orifices. Jaundie may be simulated by taking pueric acid. Crutchies, spectacles, trusses, strappings, etc., are made use of to create the appearance of disability."

THE INTERPRETATION OF THE DEATH RATE BY CLIMOGRAPHS

BY ELLSWORTH HUNTINGTON, PH.D., RESEARCH ASSOCIATE IN GEOGRAPHY, YALE UNIVERSITY, NEW HAVEN, CONN.

ALMOST everyone realizes the supreme importance of the right kind of air; but our ideas of what is really right are still hazy. A dry climate, for example, is generally supposed to be better than a moist; cold waves are thought to do much harm in winter; and a uniform climate with the right temperature is assumed to be better than one subject to pronounced variations. These are regarded by the layman as well established principles, and are generally accepted by physicians. Yet a study of deaths in a score or more countries suggests that they are fallacious.

During the past few years I have examined the relation of about sixty million deaths to temperature and humidity. Nearly nine million of these deaths were studied intensively, that is, the deaths in each of 80 cities, during a period of ten to fifteen years, were compared with the temperature and humidity of the month when they occurred. The records for each place were first tabulated independently so that there was no chance for error because of differences in occupation, race, habits, and so forth from city to city. Moreover, epidemic diseases were treated separately on a scale large enough to show that in the long run their relation to climate is in most respects the same as that of other diseases, while their number is too small to affect our final results. In addition to this, about 400,000 deaths in New York City were treated still more minutely, a comparison being made between the number of deaths and the weather each day for eight years. Surprising as it may seem, the immediate response of health to the weather from day to day is almost as important as the response to the seasons. Thus the response to weather conditions, both seasonal and daily, appears to be overwhelmingly the most important of all elements in the problem of general health.

To sum up the whole matter: a general study of

People of all races seem to have the best health at approximately the same mean temperature, 64° F. Apparently there is no such thing as acclimatization.

Cold waves are highly beneficial to health; continued cold, however, leads to increased morbidity. On this basis frequent use of a sudden but temporary drop of temperature would appear advisable as a therapeutic agent.

Alternations of temperature from warm to cool, and the reverse, appear to be decidedly favorable to health. Hence our practice of sending patients to uniform climates seems erroneous. We need to live out-of-doors in a moist, variable climate with a mean temperature of about 64°, but with many cold waves. In hospitals such conditions should be simulated.

ference, moist climates are correspondingly better than dry.

2. Cold waves, unless of extraordinary severity, are distinctly beneficial to health, while a rise of temperature even in winter is harmful. In considering this conclusion a careful distinction must be made between the effects of a *drop* in temperature, i. e., the wave itself, and of a *continuance* of a low temperature.

3. A variable climate is in general much more healthful than a uniform climate even though the latter has an almost ideal temperature.

The present article is too short to allow much discussion of methods, but a brief statement of how these conclusions were reached seems essential.*

In studying the nine million deaths where the month was the unit, 52 cities were chosen in the United States, 14 in France, and 14 in Italy, and statistics were collected for the years 1899 or 1900 to 1915, or as much thereof as possible. These cities were distributed so as to cover the whole of each country. For each city the deaths during each month were reduced to percentages of the normal for the place and year in question, thus facilitating the comparison of one city with another. The percentages were then grouped according to the humidity and temperature. For example, the percentages for all the months having a mean temperature of 60° and a mean hu-

about fifty million deaths, an intensive study of about nine million deaths by months for individual cities, and a still more intensive study of about 400,000 deaths by days in New York City, lead to the following three conclusions, which are at variance with the beliefs ordinarily accepted:

1. Fairly moist weather is almost invariably more healthful than dry weather of the same temperature, and, by in-

* For a full discussion of this matter and for a study of the relation of public health to business depressions, to great events of history, and to the evolution of species, see "World Power and Evolution," by Ellsworth Huntington, Yale University Press, New Haven, 1919.

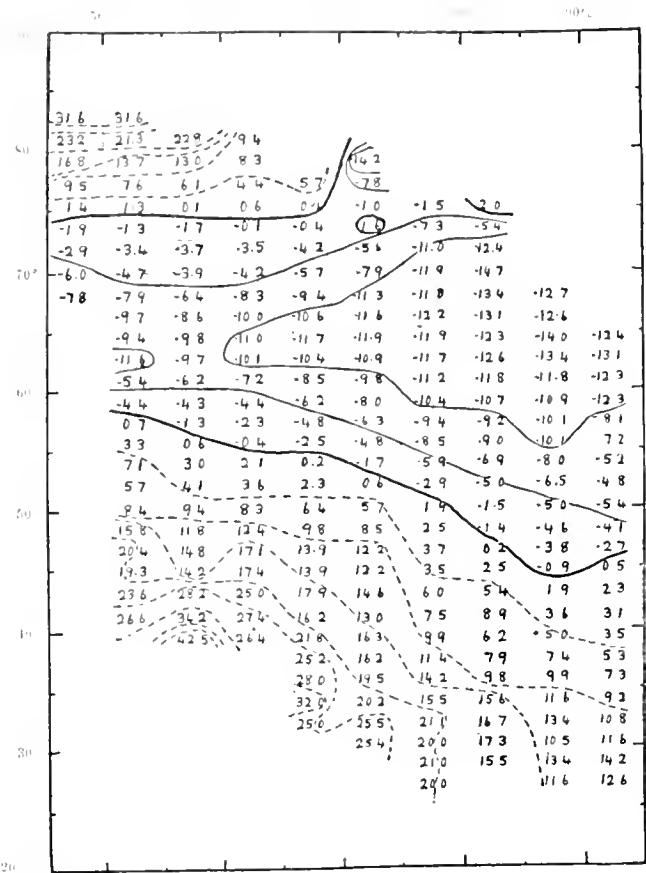


Fig. 1. Unsmoothed Climograph of France and Italy, 1899-1913,
3,700,000 Deaths.

midity of 75 per cent in the cities of a given region were averaged together, with allowance for the size of the cities. Thus during 15 years one city may have one such month, another three, another two, and so on, making a total of 15 records at perhaps seven different cities. The average death-rate may be 20 per cent of the normal, or a minus departure of 10 per cent. Again in the same region there may be nine records of months having a mean temperature of 40° and a mean humidity of 80 per cent, and the weighted average of the deathrate might be 109 per cent, or a plus departure of 9 per cent above the normal.

When a series of such averages had been obtained, the amounts by which they departed from the normal were plotted in a chart like Figure 1, which shows the conditions under which 3,700,000 deaths occurred in France and Italy. Each number in the "climograph," as such a chart is called, indicates the average departure of the deathrate from the normal under the climatic conditions indicated by the temperature figures at the side and the humidity figures at the top. Notice that the greatest negative departures, that is, the most favorable conditions, are found not far from the black dot which has been placed at a temperature of 64° and a humidity of 80 per cent. All the de-

partures of 10 per cent or more below the normal are included within the 10 per cent "isopraet," or "line of equal efficiency," which has been drawn according to the principles used in drawing isotherms on weather maps. Another isopraet has been drawn at -5 per cent, a heavy isopraet at zero, and others, the dotted lines, at 5 per cent intervals in the part of the climograph indicating climatic conditions where the deathrate is above normal.

Such climographs give a clear picture of the effect of climate. The difference between different cities plays no part, since each city is compared only with itself. The effect of epidemics is also eliminated except in rare instances, since not only do epidemics bear almost the same relation to climate as do other diseases, except as indicated later, but the averaging of a large number of cities and of a large number of years almost completely smoothes out the effect of all epidemics such as occurred during the years in question. For convenience, it is well to smooth the climographs, as

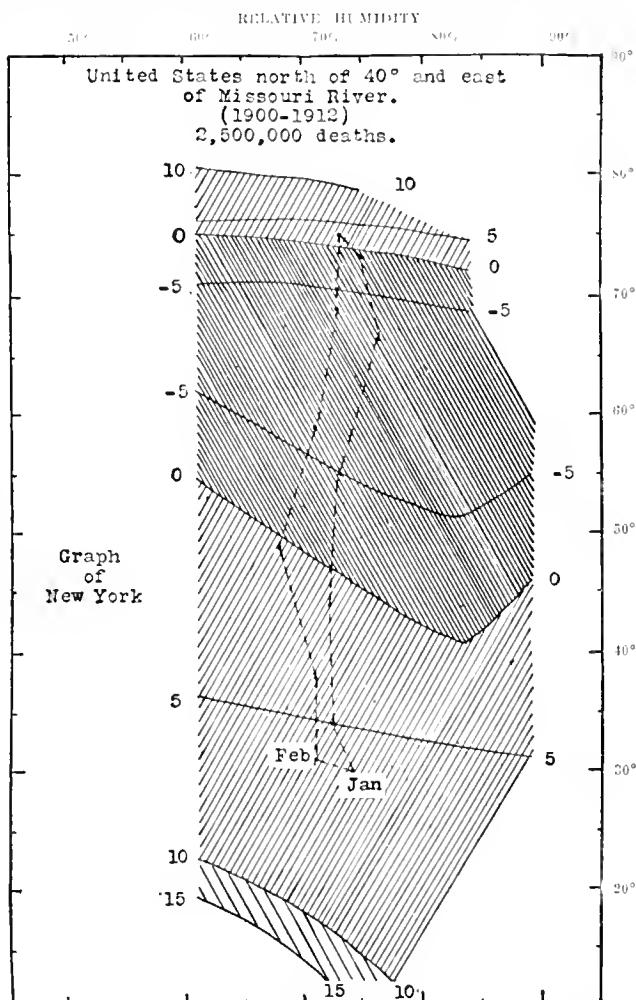


Fig. 2. Climograph of the North Eastern United States. The dash-line in the center shows the conditions of temperature and humidity in New York City for January, February and so on through the year. (Temperature F.)

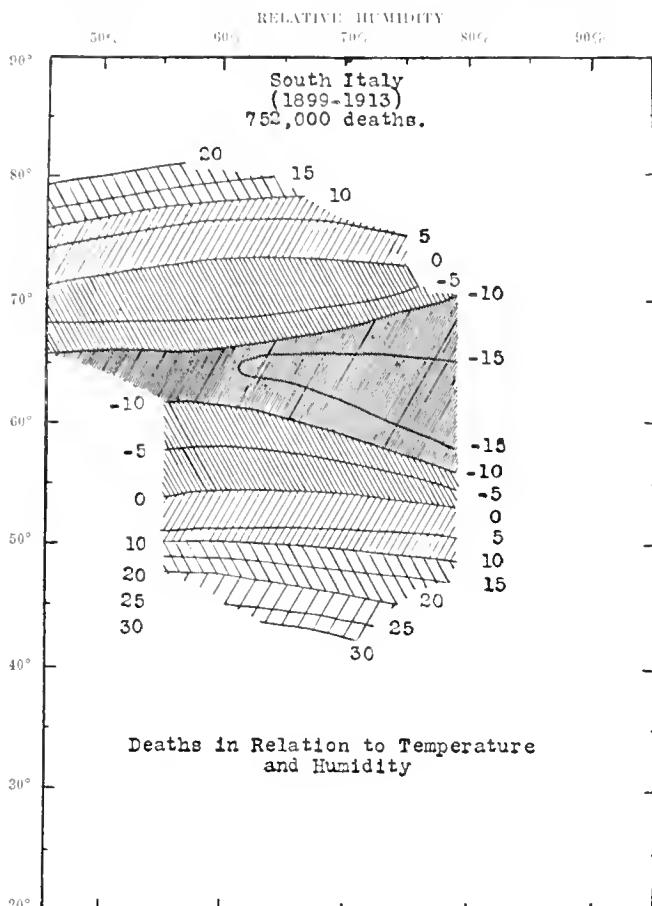


Fig. 3. Climograph of Southern Italy. (Temperature F.)

has been done in Figure 2, representing the northeastern United States, and Figure 3, representing southern Italy. In these climographs the heavy shading indicates good health, the light shading poor health, and the absence of shading means that there are no months having the combinations of temperature and humidity indicated by those particular parts of the chart.

Results

Ideal Temperature.—Let us now consider what results are derived from a series of climographs representing about nine million deaths, and from supplementary studies of fifty million more. The most conspicuous result is that in all parts of the world the most favorable or "optimum" temperature is practically the same. In other words, there appears to be almost no such thing as true acclimatization. Whether we take Sicily or Sweden, Florida or Maine, the general health is best when the temperature averages about 64°F., that is, when the thermometer falls to about 55° or 60° at night, and rises not much above 70° at noon. Moreover, race seems to have almost as little effect on the optimum as does place. When the climograph of about 167,000 negroes in the northeastern United States for the

years 1912 to 1915 (Figure 4), is compared with that of about 921,000 whites who lived in the same cities and died during the same years (Figure 5), the optimum temperature for the negroes appears to be only 4° higher than for the whites, and fuller data might reduce this. When Finns and Cubans, Scotch and South Italians, and Japanese, and various other races, are compared there is no essential difference. Yet the mean temperature, in the places where these various races live differs by 30° or even 40°. Thus it looks as if the relation of man to the outside temperature were almost as uniform as his relation to internal temperature. In fact, one is led to query whether the uniformity of the temperature of the human body among all races and in all climates may not be the reason for an almost equally marked uniformity in the temperature at which man's physical efficiency is highest.

If this is so, it has an important bearing on the problem of the heating of our houses in winter, the cooling of them in summer, and the possibility of raising the people within the tropics and in

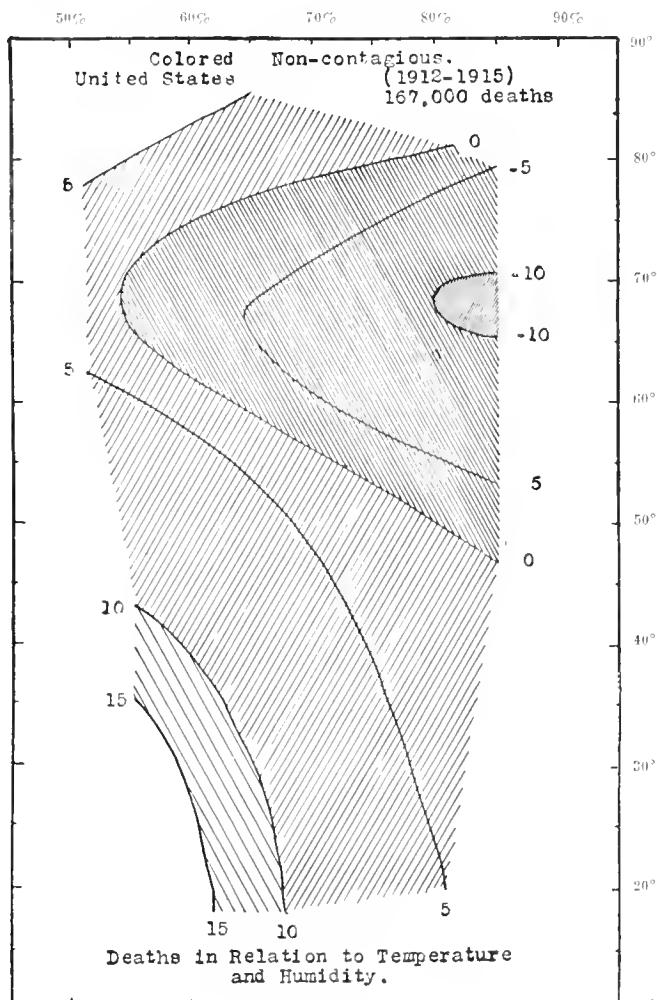


Fig. 4. Climograph of Colored Race in Eastern United States. (Temperature F.)

northern countries like Alaska to as high a level as those of more favored lands. In this connection, however, two other most important considerations must be borne in mind. First, the mean temperature is only one of the three main climatic elements, the others being relative humidity and the variability of the temperature. Second, while physical health seems to be best at a mean temperature of about 64° F., various investigations indicate that the mental optimum is considerably lower, perhaps no higher than 40°.* Thus since man is much more able to warm his body than to keep it cool, the countries and seasons that are cooler than the optimum have a great advantage over those that are even a little too warm.

Ideal Humidity.—Man's response to the humidity of the air seems to be almost as uniform as his response to temperature. In practically all of our climographs the best conditions seem to be when the temperature averages 64° and the relative humidity is not far from 80 per cent for day

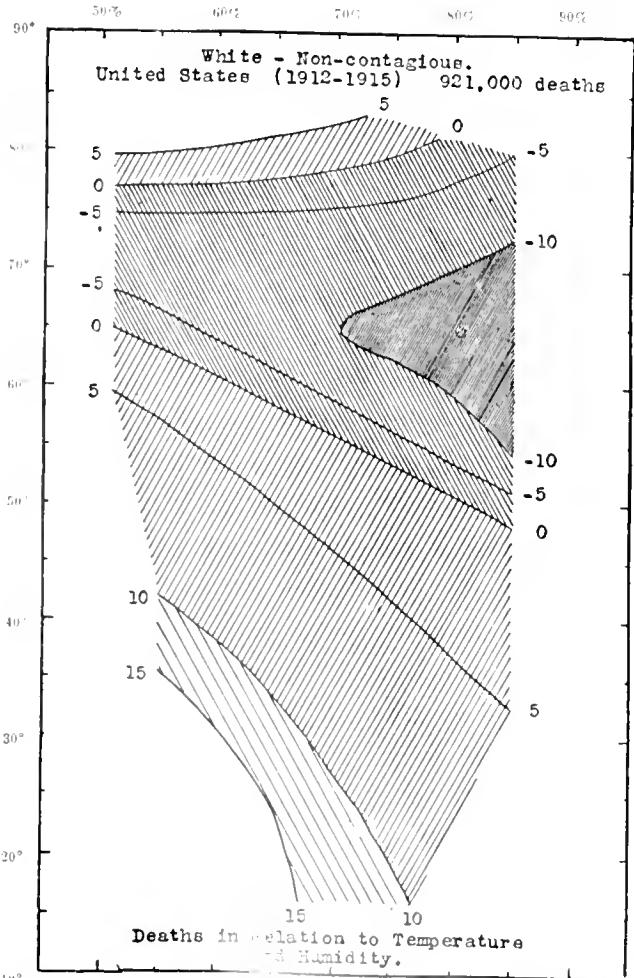


Fig. 5. Climograph of the White Non-contagious Race in the Eastern United States. (1912-1915).

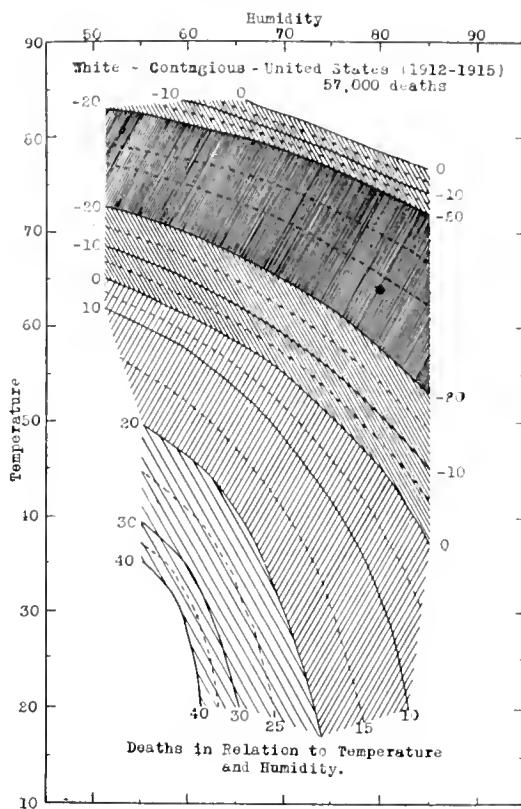


Fig. 6. Climograph of White Race; Contagious Group.

and night together. This means that by day the humidity may fall as low as 60 per cent while at night the air may become so damp that dew falls. In general this degree of humidity is decidedly greater than that which is generally supposed to be most favorable. There can scarcely be much doubt as to the facts, however, for in almost every one of the climographs representing our nine million deaths there is a tendency for the isopracts to converge toward the left. In other words, when the temperature is ideal people's health is best with a mean humidity of about 80 per cent as indicated by the black dot on the climographs, while in the drier weather, which is usually considered beneficial, the death rate increases. This seems so contrary to our usual beliefs that we are loath to accept it. The explanation of the apparent discrepancy, however, probably lies in the fact that when the air is dry people spend more time out-of-doors than when it is wet. The out-of-doors life does much to improve health, and we wrongly attribute this to the dryness.

An interesting example of this was seen at Camp Shelby, Miss., last winter during the influenza epidemic. The camp normally had beds for 1,300 patients, but 1,800 were sick at one time. The surplus had to be accommodated in tents hastily erected on muddy ground. The weather was wet and dismal much of the time. Yet, to

* This matter is discussed in "The Relation of Weather to Health and Climate," by Ellsworth Huntington, Yale University Press, New Haven, 1915, pp. 77-82 et al.

the surprise of the physicians, as I learn from Dr. Todd, the patients in the wet tents fared better than those in the regular hospital. Further details of this impromptu experiment ought to prove most illuminating.

At high temperatures the relation of humidity to health is about what is ordinarily supposed. Japan, for instance, affords a striking example of the ill effect of great humidity at high temperatures, for the death rate in August and September at the end of the warm, wet summer is very high. On the other hand, in the United States the figures show unmistakably that warm dry weather does more harm than warm wet weather. This is true even in the northeastern United States. At high temperatures either extreme of humidity is bad.

An interesting exception should be noted at this point. Figure 6 is the climograph for deaths from contagious diseases in the same cities for which the deaths of negroes and whites from non-contagious diseases are shown in Figures 4 and 5. The number of deaths is relatively small, only 57,000, but it is large enough to suggest that in warm weather there is a real difference between contagious and non-contagious diseases in their relation to humidity. With a relative humidity of 85 per cent the optimum temperature for the prevention of contagious diseases appears to be about 65°, but as the humidity diminishes the optimum rises until it becomes about 78° in weather so dry that the mean humidity falls to about 50 per cent. This agrees with the usual supposition as to the relation of humidity to health, but re-

member that it applies only to contagious diseases which for the years and cities used in Figures 4 to 6 amounted to only about 6 per cent of the total. The difference between Figures 5 and 6 suggests what interesting results will be obtained when climographs are prepared for specific diseases.

A beginning along this line has been made by Dr. David Greenberg, of the Yale Medical School. He finds that in pneumonia the relation to humidity is the same as that shown in the climographs of this article, while the incidence of the disease diminishes in direct proportion to the rise of temperature.*

Turning now to low temperatures we find the most marked effect of humidity. Notice how the isopcharts in the lower parts of Figures 1, 2, 4, 5, and 6 slope downward from left to right. This means that in dry winter weather there are many more deaths than in damp winter weather of the same temperature. For example in Figure 1, at a temperature of 40° and a humidity of under 65 per cent the deathrate is fully 20 per cent above the normal; while at the same temperature with a relative humidity of 85 per cent or more, the deaths are only 5 per cent above the normal. This is so surprising that one is inclined to doubt it, or at least to suspect that some other factor is operative. Can the season at which dryness occurs have anything to do with causing dry air to appear so harmful? For example, December has a relatively low deathrate in proportion to its tem-

* Greenburg, David: Relation of Meteorological Conditions to the Prevalence of Pneumonia. Jour. Am. Med. Assn., 1919, 252.

Table 1.

Departures of Deathrate from Normal in Driest and Wettest Months during three periods
(1900-1904, 1905-1909, and 1910-1914) for January, February, March, and December.
Based on about 700,000 deaths. Deathrates are expressed as departures from the Normal.

	San Francisco		New York		St. Louis		Chicago		Baltimore		All		
	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	
1900-1904	January	+32.8%	18.5%	+10.1%	2.7%	+4.2%	-0.7%	1.5%	4.8%	+6.2%	2.4%	+10.9%	5.54%
	February	2.7%	12.3%	3.7%	12.6%	7.5%	9.6%	+23.9%	6.6%	+20.6%	3.1%	+11.6%	8.84%
	March	0.5%	8.7%	+31.0%	-0.5%	5.1%	32.3%	+12.0%	-6.5%	+22.7%	-7.5%	+14.2%	5.34%
	December	-3.7%	8.1%	-8.6%	4.0%	+10.7%	-7.5%	2.4%	15.3%	+0.9%	-8.7%	-0.02%	2.28%
1905-1909	January	+27.2%	5.1%	+5.2%	5.1%	2.2%	10.5%	22.5%	23.8%	-4.3%	-1.7%	+10.5%	8.56%
	February	+3.9%	1.4%	+8.3%	2.7%	+12.2%	9.7%	+31.6%	15.5%	+14.3%	-7.5%	+14.22%	4.34%
	March	+7.2%	4.6%	+8.4%	8.0%	+3.5%	1.1%	+12.8%	8.5%	+17.1%	7.2%	+9.8%	5.88%
	December	+14.6%	-0.7%	-11.4%	1.5%	-11.2%	0.6%	-6.2%	2.1%	-1.0%	11.7%	-3.04%	3.04%
1910-1914	January	+27.3%	16.7%	10.3%	10.4%	+9.1%	8.3%	+16.6%	16.0%	5.0%	5.2%	+13.66%	11.22%
	February	+7.3%	3.7%	+19.7%	12.4%	5.4%	14.7%	+16.7%	8.0%	+11.7%	5.0%	+12.16%	8.76%
	March	4.6%	7.7%	+18.5%	10.6%	+15.6%	9.2%	+22.0%	8.3%	+12.3%	10.7%	+14.6%	9.3%
	December	+24.5%	8.2%	1.1%	3.0%	+9.7%	-5.3%	+9.3%	-2.2%	-3.4%	-5.3%	+8.24%	-0.32%
	Total	+148.9	+94.3	+96.3	+72.5	+74.0	+82.7	+165.3	+100.2	+100.9	+14.7	+117.8	+72.88
	Average	+12.4%	+7.9%	+8.0%	+6.0%	+6.2%	+6.9%	+13.8%	+8.4%	+8.4%	+1.2%	+1.96%	+1.22%

Apparent advantage of wet over dry 4.5% 2.0% (-0.7%) 5.4% 7.2% 3.7%

Average Humidity % 71% 83% 66% 75% 67% 79% 74% 82% 64% 74% 68.4% 78.6%

Average Temperature 52.20 52.30 32.20 34.00 38.90 36.00 28.90 27.20 35.00 39.40 37.40 37.80

Real advantage of wet over dry when corrected for temperature 4.5% 1.1% 0.7% 6.2% 5.0% 3.5%

* More deaths in dry weather than in wet

perature because the good effects of the highly favorable autumn conditions hang over somewhat; while February has a high death rate because it comes toward the end of the long, trying winter. If December were regularly damp and February regularly dry, damp weather might appear favorable simply because it comes early in the winter.

As a matter of fact there is no such relation between humidity and the seasons. Nevertheless the matter is so important that I have tested it carefully. Table 1 shows the departure from the normal death rate in five large American cities. The 15 years from 1900 to 1914 have been divided into three 5-year periods. For each period and each city the wettest and driest December, January, February, and March, respectively, have been selected. The percentage by which the mortality of each month departs from the normal is given in the table. The asterisks indicate cases where the dry months had more deaths than the wet. Such cases number 39 against 21 of the other kind. The two right hand columns show that for the five cities as a whole the dry months had more deaths than the wet except December for the periods 1900-1904 and 1905-1909. Yet when all the Decembers are averaged together the dry months are a little worse than the wet. These would be still more the case if allowance for temperature were made as is done below.

In the line of Table 1 marked "Average" the figures for all the winter months at each city have been combined. Except in St. Louis more deaths occurred in dry months than in wet appears in the line marked "Apparent advantage of wet over dry." Even St. Louis, however, is not really an exception, for the wet months happened to have a mean temperature of 36.0° as appears in the line marked "Average Temperature," while the temperature of the dry months was 38.9°. In order fairly to estimate the effect of aridity we must increase the mortality rate of the dry months to the level that it would have reached had the dry months been as cold as the wet months. During the 15 years from 1900 to 1914 St. Louis experienced 35 months with a mean temperature of 35° or less. They averaged 31 and their mortality was 9.1 per cent more than the normal. During the same period there were 34 months whose average temperature ranged from 37° to 49°. Their average was 43 and their mortality 3.2 per cent above normal. Thus a difference of 12° in mean temperature was correlated with a difference of 5.9 per cent in mortality. On this basis we may correct the mortality for the dry months in St. Louis and eliminate the effect of the difference in temperature between the wet

months and the dry. The figures for mortality thus become: dry 7.6 per cent and wet 6.9 per cent, which agrees with the other cities. In the line of Table 1 marked "Real advantage of wet over dry, etc., " a similar correction has been applied to all five cities. The average advantage of wet over dry is summed up in the figure 3.5 per cent at the right hand end of the line. This means that when due allowance is made for temperature, a difference of 10 per cent in humidity is correlated with a difference of 3.5 per cent in the death-rate. A similar relation prevails no matter which of the winter months is employed. It also prevails in other cities and other countries. Moreover, when the windiest and least windy months, or the stormiest and least stormy, are compared according to the method employed above, no clear evidence has yet been found that these conditions have any such marked and uniform effect upon the death rate. Further investigation may show that the variability of the temperature from day to day is greater in wet months than in dry, and this may enter into the problem, but thus far this has not been found to be nearly so important as humidity. Thus it appears that the excess of deaths in dry months is really due largely to the dryness.

This conclusion leads to far-reaching consequences. If dry air is harmful at the optimum temperature, as it unquestionably is, it suggests that our practice of sending patients to dry climates ought to be modified, except in special diseases, such as those which make Figure 6 exceptional. Still greater changes in our habits are demanded by the fact that in winter the dryness of the air is accompanied by an increase of from 10 to 40 per cent in the death rate. It is worth noting, however, that in some regions such as southern Italy, as shown in Figure 3, there is no increase in deaths because of dryness in winter. Similar conditions prevail in Tokio, Japan, and to a less degree in southern California. None of these places, however, is particularly cold in winter, and in none are the houses heated to any great extent. Wherever the houses are heated, on the other hand, the evil effects of dryness are only too apparent, as appears in Figures 4 to 6. The obvious conclusion would seem to be that in our hospitals and sick-rooms we are killing thousands of people each winter because we keep the air as dry as that of deserts; and at the same time we are filling our hospitals by keeping our houses too dry. Out-of-doors the winter air is moist enough, but when heated it becomes so dry that it has a devastating effect upon the delicate mucous membranes. The average humidity ought to be as high as 80 per cent. This is true not only of hospitals,

but of the rooms where people in good health work and play and sleep. But so high a degree of humidity is uncomfortable, the objector will say. Yes, if the thermometer stands at 70° all the time, but suppose it averages 64°, as it ought if we may judge from our nine million deaths. In that case

1 for France and Italy combined they begin to be nearer, while in Figure 3, representing south Italy, they are very near. Where the isopraacts are near together it means that people are sensitive to any departure from the optimum temperature; where the lines are far apart peo-

TABLE II.

Changes in the deathrate
on days with specified changes of mean
temperature in New York City, 1877-1884.

Change of Temperature	October-December (Autumn)		January-March (Winter)		April-June (Spring)		July-September (Summer)		Year	
	No. of Days	Change in Deaths	No. of Days	Change in Deaths	No. of Days	Change in Deaths	No. of Days	Change in Deaths	No. of Days	Change in Deaths
A	B	C	D	E	F	G	H	I	J	K
Drop of over 15°	34	- 6.5%	36	- 4.7%	6	- 16.8%	3	- 42.0%	79	- 8.0%
Drop of 10° to 15°	39	- 7.1%	31	- 5.0%	22	- 13.2%	10	- 16.6%	102	- 8.7%
Drop of 6° to 9°	83	- 0.8%	68	- 3.0%	78	- 4.5%	73	- 13.6%	320	- 5.2%
Drop of 2° to 5°	116	- 3.5%	133	- 2.8%	122	- 3.3%	151	- 5.0%	495	- 3.7%
Drop of 1° to rise of 1°	121	+ 0.7%	107	- 0.3%	173	- 0.9%	207	+ 1.0%	608	-- 0.1%
Rise of 2° to 5°	162	+ 2.0%	135	+ 0.6%	193	+ 2.5%	224	+ 3.8%	733	+ 2.5%
Rise of 6° to 9°	126	+ 3.8%	137	+ 2.3%	99	+ 6.5%	46	+ 9.7%	408	+ 4.6%
Rise of 10° to 15°	23	+ 3.3%	37	+ 6.3%	22	+ 17.0%	—	—	82	+ 8.1%
Rise of over 15°	10	+ 8.0%	16	+ 9.6%	3	+ 16.3%	—	—	29	+ 9.8%

the humidity will fall to perhaps 60 per cent when the temperature approaches 70°, and will increase when the rooms become cool at night. That is what ought to happen, apparently, for those are the conditions under which the general health of the community is best.

The Value of Variability.—This brings us to the most important because the most neglected part of our subject. For generations the ordinary practice has been to keep our houses and especially our sick-rooms at as uniform a temperature as possible. To a certain extent this has begun to be modified, but it is still widely prevalent. Yet our study of deaths seems to indicate that such a practice is wholly wrong. The evidence for this may be divided into three parts: (A) a comparison of the effect of variations of temperature in different climates; (B) a detailed study of the effect of variations of temperature upon health day by day in New York City; and (C) a study of the effect of variability upon the health of school children in New York City.

A. Variability in Different Climates

Compare the climographs shown in Figures 1 to 5. In Figure 2 for the northeastern United States the isopraacts are far apart; in Figures 4 and 5 for the Eastern United States from 1912 to 1915 they are still far apart, although not quite so far as in Figure 2. Next in Figure

ple are easily able to resist either heat or cold. All the climographs on which this article is based are consistent in this respect. Slightly cool weather in Los Angeles, for example, does more harm to health than decidedly cold weather in New York.

Where the climate is highly variable from season to season people acquire a fund of reserve energy which makes them easily able to resist extremes. When they go to uniform climates like California they are unquestionably benefited at first, for they not only enjoy a stimulating change but go to a place where the temperature is almost ideal—that is, not far from 64°. Their health improves just as does that of most communities in the autumn. Yet when they stay in such climates they become more and more sensi-

TABLE III.

Changes of the deathrate
on 100 days with the greatest drop of temperature
compared with changes in the deathrate on a hundred days
with the greatest rise of temperature.

	Autumn	Winter	Spring	Summer
100 days with greatest drop	- 6.0%	- 4.7%	- 10.0%	- 14.9%
100 days with greatest rise	+ 3.1%	+ 5.7%	+ 9.3%	+ 8.5%
Difference	9.1%	10.4%	19.3%	23.4%

tive to changes; their power of resistance diminishes; and in the end their chances of long life seem to be lessened. The presence of invalids

and health seekers does not enter into the matter, being few in the cities of our primary study.

B. Health and Daily Variation of Temperature in New York City

In order to determine the real relation of variability of temperature to health I have made a detailed study of the daily deaths in New York City for the years 1877 to 1884. These years were chosen simply because, incredible as it may seem, no records of daily deaths appear now to be kept in any part of the United States. Yet, as will shortly appear, such records are quite as important as records by months or years. In fact for many purposes they are even more important. The method of investigation is as follows: for each day two conditions were tabulated, namely the change in the number of deaths and the change in the mean temperature. The deaths, for example, might number 100, 110, and 97 on three successive days, while the temperature might be 44°, 50°, and 42°. The change in deaths from the first day to the second would be +10, and from the second to the third -12, while the changes in temperature were +6 and -8° respectively. When all the days with a given rise or drop of temperature were averaged together the corresponding changes in the number of deaths were found to be as in Tables 2 and 3.

These two little tables are of the utmost significance. They represent about 400,000 deaths divided into about 2,900 groups corresponding to the days of eight years. This is a basis broad enough to give conclusive results, especially when practically every single month shows the relationship that is so apparent when averages are computed. Study Table 2 a minute. Column A shows the change in mean temperature from one day to the next; column B the number of days with a given change in the autumn; C the percentage by which the deaths on the days indicated in B exceeded or fell short of those on the days immediately preceding; and so on. Run the eye down columns C, E, G, and I. Notice that invariably the days characterized by a marked drop in temperature show also a marked drop in the death rate; the days with little or no change in temperature show little or no change in deaths; and those with a marked rise of temperature show a marked increase in deaths. In column C, for autumn, the change from the uppermost to the lowermost figure is slightly irregular, but unmistakable; in column E, representing the winter, it is almost regular; while in columns G and I, for spring and summer, it is absolutely regular.

In Table 3 the same fact is brought out in an-

other way. Here for each of the four seasons approximately a hundred days, or the seventh of the time having the greatest drop, and another hundred having the greatest rise of temperature, have been chosen. Notice how regularly the deathrate decreases with a fall of temperature and rises when the weather becomes warm. Notice also the magnitude of the differences between the two groups of days in each season. A difference of over 9 per cent in autumn and 10 per cent in winter is enough to be of great significance, while a difference of 19 per cent in spring and 23 per cent in summer is truly astounding. Such differences mean that as a steadily operating cause of fluctuations in the deathrate variations in temperature from day to day are perhaps the most potent agency yet discovered. They also mean something still more surprising, namely, that a drop in temperature is beneficial *at all seasons*. It is less beneficial in winter than in summer, to be sure, but perhaps that is merely because its effect is partly nullified by the way in which people shut themselves up in the house in the cold season. At any rate, the fact is unmistakable that in New York City during a period of eight years the one-seventh of the days having a great drop of temperature were on an average about 15 per cent more healthful than the seventh having a great rise of temperature.

In considering this matter the effects of a *drop* in the temperature and of a *continuance* of low temperature must be sharply distinguished. If the temperature *stays* low, the deathrate increases markedly. Only the actual drop is beneficial. The case seems closely analogous to a cold bath. The first plunge is highly stimulating, and one emerges warm and invigorated, but if the bather stays in the water long enough to become chilled, he emerges cold and weak. On the other hand, a warm bath, like a warm wave, is relaxing and enervating. Each may have its uses, and in the case of the weather a warm wave may lead to conditions that are excellent, but in itself it is harmful.

In view of these facts the question arises whether highly variable weather is beneficial, or whether the effects of changes toward lower and higher temperatures balance one another. In order to test this I have divided each of the eight years 1877 to 1884 into 24 periods of half a month each, and have then determined the average relation of daily changes of temperature to health in New York City at all seasons. Without going into details it may be said that in Table 4 the plus signs mean that the health of New York was better after periods of ten days with a high degree of climatic variability than after periods with a

slight degree of variability. In 20 semimonthly periods out of 24 the better health follows the more variable weather. In the four periods showing the opposite condition the departures from zero are too slight to be significant. It should be noted that they occur at the time when the general

succeeding rise in temperature is considered, the net benefit of such changes is at least 6 or 7 per cent and perhaps much higher. Surely it may be said that such changes of temperature, if rightly applied, might have a most helpful therapeutic effect.

TABLE IV.

Percentages by which the variability of the temperature from day to day in periods preceding the best health differs from the variability in similar periods preceding the worst health. (Smoothed.)

January 1-15	+ 2.3%	April 1-15	+ 3.7%
January 16-31	+ 3.2%	April 16-30	+ 5.1%
February 1-14	+ 2.7%	May 1-15	+ 5.8%
February 15-28	+ 2.8%	May 16-31	+ 6.0%
March 1-15	+ 3.4%	June 1-15	+ 4.9%
March 16-31	+ 4.0%	June 16-30	+ 3.6%
Average . . . + 3.1%		Average . . . + 4.9%	
July 1-15	+ 3.4%	October 1-15	+ 0.1%
July 16-31	+ 4.3%	October 16-31	- 0.2%
August 1-15	+ 7.2%	November 1-15	- 0.2%
August 15-31	+ 6.8%	November 16-30	- 1.0%
September 1-15	+ 4.7%	December 1-15	- 0.8%
Septem'r 16-31	+ 0.7%	December 16-31	+ 1.1%
Average . . . + 4.5%		Average . . . - 0.2%	
GRAND AVERAGE . . . + 3.1%			

health of the community is highest, and at the time when cold waves have the least effect, as appears in Table 2. From all this it appears not only that cold waves at all seasons are highly beneficial provided the cold weather does not continue, but also that, in general, people's health is good during periods when there are frequent and extreme changes of temperature.

The lesson of all this is obvious. We have had the habit of trying to preserve a uniform temperature for well people and still more for the sick. That appears to be the worst possible policy. Perhaps in some diseases it may be helpful, but for the great majority the contrary is clearly the case. What we ought to do is to make the temperature vary as much as possible, up to the limit that people can stand without becoming chilled.

Indeed, we ought perhaps to pay special attention to the stimulating effect of changes of temperature when a disease reaches a critical stage.

I know that this sounds revolutionary, but remember that in New York in spring and summer, when the outside temperature corresponds to that of an ordinary sick room, a drop of 10° or more in temperature is accompanied by an improvement of over 20 per cent in the death rate. Moreover, even when the neutralizing effect of the

C. Variable Temperature and the Health of School Children

Even if the reader is inclined to accept this conclusion, he naturally asks for experimental proof. The answer is that no experiments appear to have been tried on a large scale with this particular purpose in mind, but the New York Ventilation Commission has tried an experiment which unintentionally fills the bill. The Commission's purpose was to test the value of window ventilation compared with the most approved modern

TABLE V.

Effect of Variability of Temperature upon Respiratory Diseases among School Children in New York.

Character of Room	Absences due to Respiratory Diseases per M Possible Attendances	Respiratory Diseases per M among Pupils in Attendances
(1) Cool rooms (60°) with window ventilation	9.6	59.4
(2) Warm rooms (68°) with window ventilation	10.4	37.5
(3) Warm rooms (68°) with fan ventilation	13.5	88.8

systems of artificial ventilation. During the period from February 19 to April 8, 1916, records of diseases of the respiratory organs were kept

in eight New York schools having 58 class rooms, and 2,541 pupils, while from November 4, 1916, to January 27, 1917, similar records were kept in 12 schools having 76 rooms and 2,992 children. A corps of trained nurses under the supervision of physicians examined the children daily and looked up those who were absent. The rooms were divided into three groups: (1) cool rooms where the windows were kept open as much as possible and the temperature averaged about 60 most of the time; (2) warm rooms having no ventilation except by means of windows; and (3) warm rooms provided with artificial ventilation by means of fans. The children of the three groups were of the same kind and in each case came from practically all grades of society. So far as purity of the air was concerned the rooms of group 3 had an advantage, since they received a constant stream of pure, fresh, warm air, while the others received fresh air more or less intermittently according to the amounts that the windows were open. Judged by the ordinary standards group 3 had a distinct advantage. Yet look at the results as given in Table 5.

I have headed this table "Effect of variability of temperature" because this appears to be the only difference that can account for the great advantage of group 1 and especially of group 2 over group 3. The children of group 3, with fan ventilation and hence with uniform temperature, had 3.9 more absences per thousand and 29.2 more colds per thousand than the children of group 1 in the cool, but variable room. The rooms of group 3 were about 4° warmer than the optimum according to our nine million deaths, while those of group 1 were about an equal amount too cool. If we assume that these two departures from the optimum balance each other, the only apparent difference is in variability. When groups 2 and 3 are compared the contrast is still more striking, and there is no difference of mean temperature to confuse the issue. The only difference in the air of these two groups was that in group 3 the air was never allowed to get much above or below 68°, while in group 2 it sometimes became too warm and then was suddenly cooled a few degrees by opening the windows. Yet this small difference in variability seems to be correlated with an advantage of 3.1 per thousand in absences because of sickness, and 51.3 in colds among the pupils in attendance. Thus in both cases variability appears to be a great advantage. If these facts stood by themselves we might question this conclusion, but when they are viewed in the light of our study of the effect of variability upon the daily deathrate in New York City as a whole, the case seems fairly clear.

Here we must leave the matter. Our study of deaths seems to indicate that both in our homes and still more in our hospitals certain radical changes are necessary. First, the mean temperature should average about 64° rather than about 68° or even 70° as is now often the case. Second, the relative humidity should be considerably higher than now, especially in winter. Third, there should be constant variability of temperature, the degree of change and the level to which the temperature should drop to be determined by the patient's power of resistance. If the ideal system were employed the temperature would presumably range every few hours from perhaps 58° to 70°, with an average of 64°. It begs the question to say that this would be too variable for the average patient. Of course, it would if the patient had previously been kept in a uniform and enervating temperature of 70°. But even in that case it would be possible to let the temperature range back and forth from perhaps 62° or 64° to 70° and then gradually increase the range and lower the average until the ideal was reached. It goes without saying, that we are only at the beginning of this subject. This much, however, is certain: the millions of deaths for which statistics are available are an enormous and almost untouched reservoir of facts as to the preservation of health. So far as that reservoir has been tapped, it seems to indicate that some of our most cherished ideas of the relation of health, temperature and humidity are wrong. We must follow the leading of the facts, and meanwhile test them more minutely and in many other ways.

Schoolmasters Urge Hygiene Program

The National Education Association at the meeting of the Section of Superintendence, in Chicago, presented the report of the Commission on the Emergency in Education in which the commission urged medical and dental inspection of school children, the establishment and supervision of playgrounds, gymnasiums, swimming pools and athletic fields, school lunches, clinics, open-air schools, school farms and gardens, not only for the city but for the country as well.

Improper Home Hygiene as Cause of Rickets

The three principal causes of rickets among children of industrial populations, according to Leonard Findley, a contributor to the *Glasgow Medical Journal*, seem to be improper housing, absence of facilities for open-air life, and imperfect parental care. These factors, in the order stated, he found to be the primary cause of the trouble in a statistical study of the family environments and dietary conditions in the homes of 500 rachitic children. The average air space per person among the families most afflicted was 122 cubic inches. Among the group only mildly afflicted the average air space was 483 cubic inches, while among the nonrachitic families, it was 625 cubic inches. Ventilation, home sanitation, and the absence of open-air spaces and playgrounds were determining factors.

THE PHYSICIAN'S OBLIGATION TO THE PUBLIC HEALTH

BY RUPERT BLUE, SURGEON GENERAL, UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

TO the credit of the medical profession be it said that, though physicians gain their living principally through the prevalence of disease, they have ever been active in seeking to control, prevent, and eradicate this foe of mankind.

With the extensive social and economic adjustments now going on throughout the world, the time has come for physicians generally to take a more active interest in determining the relation of medicine to the public health and welfare. Unfortunately, many physicians apparently do not realize how they can participate in this important work. It may not be amiss, therefore, to enumerate what the community may legitimately expect of physicians. As I conceive his obligation to society, the physician should apply his special knowledge to the study of community health problems and make himself one of the leaders in the inauguration of measures to promote public health and welfare.

To do this he must maintain active contact with the agencies engaged in the promotion of health and welfare; keep informed regarding recent important activities and achievements in the field of public health and state medicine; interest himself in the interrelation of health and social and economic conditions, and cultivate a broader outlook on the relation of medicine to public health and welfare; constitute himself a health educator, always to his patients, and as occasion offers, to the community; seek to discover the causative factors in disease and direct attention to their correction or removal; cooperate whole-heartedly with the health authorities by promptly reporting all births and deaths and all cases of notifiable disease, by assisting in the maintenance of quarantine, by promoting preventive measures for the control of disease, and by utilizing the diagnostic laboratory facilities and specific therapeutic agents offered by the health authorities.

It is almost inexcusable for a physician to be ignorant of the sanitary condition of his community. Thus, he should know the source of the

IF NOT, WHY NOT?

Do I fully instruct patients in controlling the spread of communicable disease?

Do I stimulate the people of my community to initiate community health work?

Do I always seek to discover the underlying social and economical causes of my patients' illness?

Do I place self-interest above community welfare by failing to report communicable diseases to the health officer?

Do I strive to keep public health matters out of partisan politics? Do I keep abreast of progress in public health?

municipal water supply, and, in a general way, the sanitary conditions bearing on the supply. Are there any potential sources of pollution? What is being done to safeguard the supply? Are there numerous shallow wells in use?

What is the quality of the milk supply? Are the sources of production under adequate supervision? Is the sup-

ply effectively pasteurized? Are his baby patients getting safe milk?

Is the disposal of human excreta safe? If there is a sewerage system, what disposal is made of the crude sewage? If there are many outdoor privies, are they of the sanitary type?

Is malaria prevalent in the community? If so, has any organized attempt been made to enlist state aid in a campaign for its control? Does the public understand the relation between malaria and mosquitoes? The methods of combating mosquitoes?

Does the community enjoy a system of school medical inspection? The services of a public health nurse? Is provision made for the health supervision of infants and young children?

If the community is an industrial one, the physician should familiarize himself with the important field of industrial hygiene. He should be in a position to point out the intimate relation between the sanitary conditions prevailing in the industry and the health of the community. Are the factory buildings clean, light, and adequately ventilated? Have the various special health hazards and the ordinary machinery hazards been guarded against? Is there undue industrial fatigue? What are the hours of work? Are the workers adequately nourished? Are their housing and general home environment sanitary?

Are venereal infections prevalent in the community? If so, has any attempt been made to organize the community for their control?

Is the health officer sufficiently compensated? Has he adequate assistance and proper facilities for good administrative work?

MODERN MEDICINE AS A GAUGE OF CIVILIZATION

BY W. C. BRAISTED, SURGEON GENERAL, U. S. NAVY, WASHINGTON, D. C.

THE development of medicine has always paralleled the general progress of a people and often gone ahead of it. From the remote past physicians, who in the main have been men of learning, often contributed to civilization more by their collateral knowledge than by proficiency in their own domain. Thus de Lignamine, physician to Sixtus IV, gave a powerful impulse to the new-born art of printing by setting up a press in his own home, editing the classics and serving as adviser to the publisher Hahn of Ingolstadt; Ludovico Lilio furnished the astronomical basis for the Gregorian calendar; Fracastor was a pioneer in geology and Thomas Young paved the way for deciphering the Rosetta Stone.

To-day the range of human knowledge has so increased that specialization is indispensable even within the several liberal professions, and a physician's contributions to civilization must be largely by activities within his own sphere. In thinking of modern medicine then we may well ask ourselves, What is civilization and what is the doctor's legitimate sphere?

It has been said that a country's consumption of sulphuric acid is a fair gauge of its civilization in view of the wide employment of this chemical in the industrial arts. This is not true, since industrial activity is compatible with very defective civilization. Again, it has been said that the school population is an index of civilization, but it is not the number of buildings and their equipment, nor the number of children instructed that really count. The significant thing is what the children actually learn; the permanence and accuracy of their acquirements and the bearing of the latter on their usefulness in life.

Another view is that the development of a state is indicated by the degree of accuracy and completeness with which its vital statistics are prepared and the influence which deductions from them exert, directly or indirectly, on the life and

MEDICINE A SOCIAL SCIENCE

Modern medicine is distinctly social. It is the medicine not of the sick considered merely as individuals, but of the sick en masse; of individuals in their relation to each other, of diseases affecting public morals, of diseases modifying the attitude of capital and labor, and the duties of citizens to state and state to citizen.

The study and treatment of the diseases of the day concern the vitality of the nation and its success through future generations.

Vital statistics afford a simple, practical illustration of service along the lines of social medicine.

serious defect is that conditions differ widely in the several states, some being wholly agrarian, sparsely settled, and with limited public funds.

Such a defense would have force if the collection of vital statistics were a matter of trifling moment, but vital statistics are a matter of great importance. Failure to appreciate their value is a sign of ignorance, of thoughtlessness, of a small and narrow conception of the duty of the individual and the duty of the state. Unwillingness to contribute to the collection and utilization of such data shows in the individual an indifference to his civic obligations and in the government a supineness, a weakness far from the ideals of true civilization. So far as medicine is concerned, vital statistics are collected, interpreted and acted upon with a view to the prevention and reduction of disease, but the facts deduced from them bear in many ways on the law and social institutions. Wise sanitary regulations and state and national enactments relating to health depend on accurately observed, recorded, classified facts, regarding the incidence of disease by locality and season, by age and sex; regarding the periodicity and frequency of epidemics, etc. Accurate and complete reports of births and deaths and marriages are also of extreme value in relation to property transfer, inheritance, citizenship, the issue of passports, military training and service.

The lack of enlightenment demonstrated by neglect of vital statistics is easily corrected. It is possible in a five minutes conversation to convince

welfare of the people.

It has long been a matter of reproach to our country that it lagged so far behind other nations in this particular, and today we have to confess with shame that the registration area from which reliable statistics are procurable as a basis for public health enterprises of far-reaching character includes but 77 per cent of the population of the United States. The excuse offered for this

a doctor of the importance of this subject, but to get the busy practitioner, interested in patients and fees, to make the necessary returns is another matter and there is a big difference between securing the enactment of a legal provision for health and insuring its uniform observance. The lack of civilization shows in the *unchallenged repudiation of responsibility*. Mere intellectual appreciation of the merits of a question has little value unless there is willingness to contribute time and labor to the development of the purpose involved. One is culture, the other morality.

Now, most practitioners despise clerical duties, and those who conscientiously engage therein do not enjoy them any more than those who neglect this feature of their work. It is a mistake to fancy that literary proclivities or scholarship lessen the tedium of making out forms and that only the practical surgeon, aurist or bacteriologist feels the drudgery of clerical work. The young and ambitious physician is peculiarly prone to resent the necessity of preparing returns of births and deaths and reporting cases because he does not appreciate that it is as much his duty to record his work well as it is to do good work. In one case a little benefit is individually wrought for the many, in the other a great deal is accomplished for a limited number of individuals.

Very few of us enjoy making a urinalysis and certain digital examinations are distinctly distasteful, but the satisfaction of a correct diagnosis and the glory of a cure depend on exhausting every means for securing all necessary information on a case. Anything less is not scientific, high grade medicine. As a nation we must hasten the time when our knowledge of the nation's health will be derived from a registration area representing not 77 but 100 per cent of the population. Whatever may be a doctor's individual talent in ministering to individuals he cannot be considered an all-around man, a fully functioning organ of the profession to which he belongs or of the body politic, unless he discharges his obligations to the country as a whole. If our practising physicians cannot furnish full reliable data to those who tabulate, interpret and apply them for the general good, we fall short of being in the aggregate a scientific body of men. There is no question of our ability in this respect. Have we then the will to perform our modicum of drudgery, in order that the experience, the effort, the success of all may be fully utilized for the good of all?

A state where this obtains is unquestionably highly civilized, and unless public servants are animated by this spirit they will never attain the full measure of success to which they are entitled by their opportunities and qualifications.

I have spoken at length of vital statistics because they afford a simple, practical illustration of service along the lines of social medicine. Modern medicine is distinctly social. It is the medicine not of the sick considered merely as individuals but of the sick *en masse*; of individuals in their relation to each other, as in the case of contagious diseases, of diseases affecting public morals, of diseases modifying the attitude of capital and labor and the duties of citizen to state and state to citizen. The study and treatment of the diseases of to-day concern the vitality of the nation and its success through future generations. The physician, for example, who can treat a case of hookworm or malaria and be unconscious of the social aspect of these infections and indifferent to their far-reaching effect in deteriorating the stamina of whole sections of the population has not oriented himself in the newer field of thought and action open to our brotherhood.

HEALTH AND THE JUNIOR RED CROSS

The Junior Red Cross, which was of great assistance during the war in the successful carrying on of all war winning activities, has found a definite and important peace work. The purpose of the Junior Red Cross has steadfastly been educational and, striking at the fundamental of success in life, it now aims to promote a thorough physical education among the children of our nation. In cooperation with tuberculosis associations, it has launched a Modern Health Crusade. Under the attractive conception of being pages, squires and knights warring against the Dragon Disease, just as Crusaders of old fought the Saracen host, our children are enthusiastically gaining healthful habits.

To be a Health Crusader, the child must wash his hands before each meal, his neck and ears daily, drink plenty of water, brush his teeth morning and evening, play outdoors, sleep ten hours a night, bathe several times a week, and keep neat and cheerful. As an incentive to the children, there are badges and pins of different rank awarded them after so many weeks of performing their health chores, and there are pennants for state and national winners in the tournament.

As an important issue of the Health Crusade, courses in First Aid and Home Nursing are being established in our high schools. The desperate need of instruction in these subjects was evident in the recent epidemic, when many lost lives might *not* have been lost had there been some person in the home intelligently informed on how to care for the sick. The Junior Red Cross is seeing to it that the coming generation will be fitted to cope with such a situation. More than that, it is minimizing the possibility of another epidemic. It purposes to raise the health standard of every child and to promote a better, more thorough education on a 100 per cent health basis, so that, after a few years of this régime among the youth of our nation, an epidemic will meet with a resistance which germs cannot conquer. We have every reason to expect that with parents, teachers and children cooperating in the Health Crusade this modern tournament will be the cornerstone in the new national framework of health and sane living.

A COMMUNITY SELF-ORGANIZED FOR PREVENTIVE HEALTH WORK

BY COURtenay DINWIDDIE, EXECUTIVE, OCCUPATIONAL COUNCIL, THE NATIONAL SOCIAL UNIT ORGANIZATION, AND A. G. KREIDLER, M.D., EXECUTIVE, MOHAWK-BRIGHTON PHYSICIANS COUNCIL, CINCINNATI, OHIO.

IN one of the neighborhoods of the city of Cincinnati, on the upper edge of its basin area and at the foot of one of its numerous and picturesque hills, is a community of 15,000 souls, known as the Mohawk-Brighton district. In this community is being tried out an experiment in medical administration and preventive health work which is unique. Thirty-six physicians of this district have organized themselves as a neighborhood physicians' group, not only to look after the preventive medical work of their own territory, but to work definitely with advisory groups of physicians in the city and in the nation to find the answers to some of the pressing health questions of the day. Some of the questions upon which they hope light will be thrown by this community experiment are the following:

How far is it possible, through organization of preventive health work by the physicians of a neighborhood functioning as a sort of local health board in association with other neighborhood groups to bring preventive medicine and nursing so intimately and closely into the daily life of the people as to approximate 100 per cent preventive measures?

In what way can we secure the advantages of organized medicine, of medical consultation and group diagnosis for the average physician and the average patient and at the same time preserve for the patient that exercise of personal choice in the selection of a physician which seems desirable and also avoid undesirable restrictions upon initiative and original work in the practice of medicine?

By what means may the work of public and private health agencies, the health department, public hospitals and dispensaries be coordinated most effectively, not only with one another, but with the work of the practising physician?

How may the physician work most closely with

Is it possible to enroll neighborhood physicians in a community service corps to bring preventive medicine to 100 per cent of the people?

To what extent can a community health program be made effective through neighborhood organization?

How may a real working relationship be developed among physicians, wage earners, employers, nurses, social workers, and educators?

The Social Unit, an Experiment in Applied Democracy, carried on in Cincinnati, Ohio, has ventured first into the field of preventive medicine, and the first year's experience is here detailed.

other groups in the community, such as wage earners, employers, nurses, statisticians, social workers and educators, in reaching and dealing with such underlying causes of diseases, as maladjustment in employment, unemployment, ignorance and poverty?

The physicians, through their elected medical director, are represented on a neighborhood occupational council. This council in-

cludes also the elected representatives of other neighborhood groups, such as nurses, social workers, business men, wage earners, teachers, clergymen and also recreational and publicity organizers. This is a neighborhood planning body which also is in charge of skilled services determined upon by the community. Coordinate with this occupational council, is a citizens' council, consisting of the elective representatives of each of the 31 blocks of the district containing approximately 500 people each.

While the experiment is in charge of the people of the Mohawk-Brighton District, the councils conducting the work are closely in touch with similar councils in the city and in the nation, which are acting in an advisory capacity. Thus this plan of neighborhood work is being studied and guided so that the best advice may be secured and as few mistakes as possible may be made.

Neighborhood Health Activities in 1918

Following the social unit plan of procedure, the medical work, which was the first concern of the new neighborhood organization, has been under the charge of the physicians of the district, organized as a medical group and appointing their own councils and staffs, and working with advisory councils appointed by the Academy of Medicine at their request. The nursing work has been similarly under the charge of the nurses working in the district, who, as the work has developed, have come to be the members of a neigh-

borhood staff, working with an advisory city nursing council, elected by the Graduate Nurses Association.

Baby Service.—The first service decided upon by the Mohawk-Brighton citizens' and occupational councils was for the postnatal care of babies, which was opened on December 17, 1917. The type of service in examining babies to prevent illness, instructions to their mothers, in referring them to their family physicians where treatment was necessary, and in following them up through visits to the health station and visits by the nurses to the homes, was not essentially different from that in other infant welfare centers. This service, however, was differentiated from others by several unusual features.

1. The necessity for such a service and its importance to the neighborhood were determined not by some outside agency or department which did not have contact with the neighborhood. They were determined through discussion by the block representatives with their neighbors and by the physicians, nurses and other groups and through an official vote of the citizens' and occupational councils.

2. The work of discovering the babies and of interesting the mothers in bringing them to the health station was conducted not by outside workers, but by the residents of the blocks themselves who had voted for this neighborhood service. In this way, it was distinctly a neighborhood affair in which there was no line between rich and poor. It was a matter of pride rather than otherwise to have one's baby examined by the station physicians.

3. The actual medical examination of the babies was conducted by the physicians living or practising in the neighborhood. As a consequence, they were favorable rather than antagonistic, and such benefits as come from clinical experience, consultation, and study accrued to the whole medical group rather than to some expert brought into the district.

4. As a backing for this service, not only was there a discussion prior to the decision to establish it, but also there was a careful explanation by the physicians themselves to the block workers and to other groups, such as social workers, clergymen, and teachers, of the importance of infant welfare work, its effect upon the health of the community, the methods of carrying it on, and the cooperation necessary on the part of the residents of the community itself. There was a general dissemination of this knowledge and information by the block workers and the various groups throughout the neighborhood. In addition, a public open meeting was held at which the

problem of infant welfare was discussed clearly in a popular way.

As a result of these features, which are typical of this neighborhood plan of work, in four months every one of the 297 babies under one year of age was under nursing supervision, and 70 per



The Mohawk-Brighton District A community of neighbors.

cent had been given examinations by the medical staff. As babies are born, they at once come under the nursing care. Also, the baby service has been extended to include babies between one and two years of age, and at present every baby under two is under nursing supervision. Of these, 90 per cent have visited the health station and have had careful physical examinations and many are returning at regular intervals for preventive oversight by the physicians, being referred to their family doctors for curative care.

Pre-school Service.—In cooperation with the U. S. Children's Bureau "Children's Year" campaign, every child under six in the Mohawk-Brighton District was registered by the block workers within from two to ten days. This in itself was a notable achievement and made possible an immediate campaign for complete physical examination of these children instead of the simple weighing and measuring which was the aim of the national campaign. There were 1,173 such children registered, including the babies under two, mentioned above. There were 1,007 pre-school children given a complete physical examination in three and one-half months, and 1,075 had been examined by December 31, 1918. Of those found to have defects, 370, not including 410 babies under 1 year of age, are still under nursing care because they require continued supervision. The work of securing the correction of these defects had to be practically suspended during the influenza epidemic but will be one of the prime interests of the nurses during 1919. These results are in contrast with those in other places where only the weighing and measuring of the children has been attempted.

Prenatal Service.—Studies of infant mortality show that 50 per cent of baby deaths are due to prenatal causes. The establishment of a prenatal service which will reach a large percentage of expectant mothers is the most difficult and delicate undertaking in medical work. As the result of the neighborhood organization in the



The Social Unit District is a very representative community. It has its congested section, and also its avenues like this one.

social unit district, the prenatal service, which was begun on April 1, 1918, has grown steadily through the cooperation of the block workers with the nurses and through the support of the family physicians, until 52 expectant mothers were under supervision in the month of September. This represents 45 per cent of the estimated number of pregnancies past the three months period. One conference a week is held at the station, and, although an increasing number of expectant mothers are coming to the station, the majority are supervised by the nurses in their own homes, under the direction of the family physician.

Maternity Nursing Service.—This service, while not definitely provided for in the 1918 schedule of the work, has grown up because of the actual need and demand for it. Up to the present time it has been possible for the nurse to give only postpartum care. This has been given in 73 instances out of a total of 242 births. If allowance is made for hospital admission and for the number of confinements in which midwives are called, it appears that the social unit nurses have given care to over 40 per cent of the mothers who have been delivered at home by family physicians.

During 1919, it is planned to add nursing attendance during confinement to the other neighborhood services.

Tuberculosis Service.—The health program for the district and the budget for 1918 did not include a tuberculosis service. However, the Anti-Tuberculosis League, because of its desire to see the neighborhood organization effective in the campaign against tuberculosis, offered to

assign one of its nurses, who had a somewhat larger district, to work solely in the Mohawk-Brighton district. This offer was accepted and the additional nurse took one of the nursing divisions of the district, doing general nursing for all classes of patients. The other nurses of the staff, because of this relief, were able to take up tuberculosis nursing with their other activities. On May 1 the League reported 29 patients, tuberculous, or suspected cases, requiring observation, then under their care in the Mohawk-Brighton district. This number had increased to 111 up to the time of the influenza epidemic in October. By December 31, 122 additional patients had been added to this service. It is interesting to analyze the sources of these additional patients, as follows: 3 proved to have been actually under the league's care before; 5 were discharged from the army; 4 were found to have tuberculosis upon examination at the General Hospital; 6 moved into the district, 1 of these from a neighboring state; 17 had been exposed to tuberculosis through contact with patients previously known to the Anti-Tuberculosis League. These 35 patients came through the League, in addition to the 29 first reported. Besides these, 64 were discovered through the close neighborhood contacts established by the nurses, and 23 were reported by the practising physicians of the neighborhood, making a total of 122 additional patients and 151 in all. For patients not under the care of the family physicians, and unable to pay for such care, the Anti-Tuberculosis League has given medical supervision at its dispensary. Also, the League has had the social unit nurses attend its tuberculosis clinics twice a week to help in giving them a thorough grounding in nursing supervision of tuberculous patients.

Another source for the discovery of tuberculous patients is the beginning of periodic examinations for adults, since the influenza epidemic, which it is hoped will still further build up this service during the coming year.

Bedside Nursing Service.—This service was opened in March, but because of the great and increasing demands of other services, no active efforts to build it up were made. An announcement was made by letter to all physicians that the nursing staff was prepared to care for the sick and, as patients have been reported, they have been given care. Thus, without a special effort to develop this service, it has grown steadily until, in September, 84 patients were under care. This is a great increase over the average number of patients formerly cared for in this district by the Visiting Nurse Association, but the service still has many possibilities for development.

Dental Service.—With the cooperation of the Cincinnati Dental Association and the local dentists, an examination of the teeth of the school children of the Mohawk-Brighton district has been made. These children are being followed up and an effort is being made to secure the correction of the defects found, through the nurses and block workers.

The dental situation in this district is very propitious for carrying out a dental program. This district is inadequately served and the free clinics are not sufficiently near to be used by this neighborhood. There is a definite demand emanating from the physicians, the schools and the block workers for the installation of a dental service for the community. With such an additional program, it should be possible to conduct 100 per cent examinations of school children and an intensive and continuous follow up for correction, through the nurses and block workers.

So important has the dental service seemed as part of a medical program for the district, that the dentists and physicians have definitely affiliated in a single medical group for the community.

Influenza Service.—The influenza epidemic began to develop in the Mohawk-Brighton district during the first week in October. It was necessary to discontinue practically all regular services and to throw the whole weight of the nursing staff into the handling of the epidemic. The neighborhood physicians were occupied to the fullest in caring for the tremendous demands made upon them in their private practice, but made excellent use of the nursing staff. The nurses, at the suggestion of the health officer, cared for patients outside of the district whenever called upon by the Visiting Nurse Association.

As soon as the epidemic became apparent, a leaflet giving information on the prevention of the disease and on the care of those having it, was prepared promptly in consultation with the physicians' council of the district. Within twenty-four hours this was delivered in practically every home in the district. This spread necessary and important information and also was one cause of increasing the application to the unit office for help.

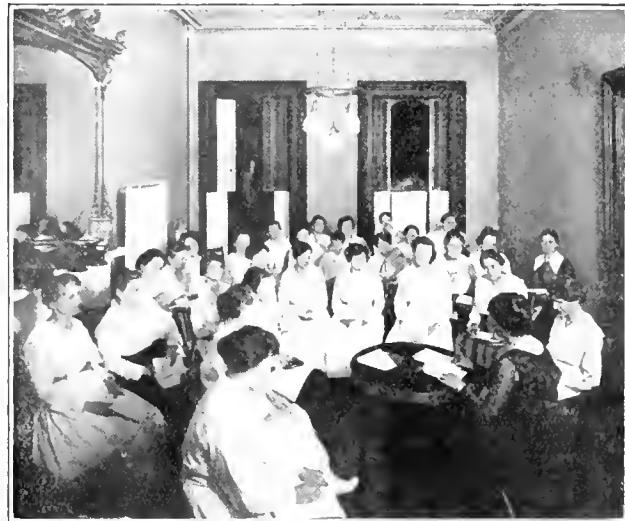
Because of the neighborhood organization and the prompt giving out of information, the demands upon the unit staff were much greater than in any other section of the city. In proportion to the population, five times as many cases of influenza were under care in the unit district as in the remainder of the city. As a result of this, better care was given. The figures show the district's death rate from influenza and resultant pneumonia to have been 2.26 per 1,000 population as compared to 4.10 per 1,000 for the

remainder of Cincinnati, and 5.79 for the remainder of the 3 wards, parts of which are embraced in the social unit area.

Periodic Examination of Adults.—The physicians' group, feeling the importance of following up convalescents from influenza in order, wherever possible, to prevent the development of tuberculosis or other diseases which result from a weakened resistance, voted for the establishment of regular conference periods for the examination of adults. These have just been begun, but already an incipient case of tuberculosis, several cases of heart lesion, chorea, and other ailments have been discovered and treatment has been instituted by the family physician or the appropriate agency.

Summary of Medical Work

The physicians in the Mohawk-Brighton district thus have done what perhaps has never been done anywhere else. They have organized themselves as a neighborhood group to look after the preventive medical work of their own territory. The excellent results secured in the examination and preventive oversight of babies and pre-school children and in other departments of the medical work would have been impossible without their active support and actual participation through rotating staffs elected by them. The physicians are paid for their services during conference periods.



Social Unit "Block Workers" who interpret skilled programs to the people of the district, and voice the people's needs and desires.

Through consultation among themselves, through conferences with city advisory committees, appointed by the Academy of Medicine at their request, through studies of literature and opinions secured from the national advisors and through the preparation of educational literature

and programs for the neighborhood, the physicians have been developing what is practically a graduate school in preventive medicine. This has reacted directly to the benefit of all coming under their observation and has proved advantageous to the physicians themselves.

In doing these things, the physicians' council has conducted the most complete known examination of children up to the school age; and has laid the foundation for a most thorough-going and intensive follow-up work of such as have defects needing correction, and also of the well, as a basis for keeping them well.

Summary of Nursing Work

The story of the nursing work in the Mohawk-Brighton district during 1918 is largely told in the description of the general health activities as already given. As in the case of the physicians, the nurses working in the district have been in charge of the nursing work and in frequent consultation with the City Advisory Nursing Council and with the National Advisory Nursing Council.

The completeness with which babies and pre-school children needing attention have been placed under nursing supervision would have been impossible except for the excellent work of the nurses in winning the confidence of the neighborhood in the exercise of wise supervision.

The statistics as to the growth of the various nursing services are striking. The baby service grew to a point where all babies are receiving nursing supervision, an increase of 1,200 per cent in a space of four months. The tuberculosis service showed an increase of 400 per cent in four months from its beginning. Bedside nursing, without an especial effort to build it up, increased to the point where five times as much of this type of work is being done in the district as in the entire city in proportion to the population. Nursing supervision of expectant mothers grew in the space of five months to a point where 45 per cent of pregnancies past the three months period were under nursing supervision. The nursing supervision of children under the school age was built up in four months so that 100 per cent of these children having defects which needed to be followed up were under care. The results achieved in establishing so effective a supervision of children under the school age and of expectant mothers appears to be unparalleled.

It is interesting to note that all of these results of nursing work were accomplished by a force averaging only twice as many in proportion to the population as the public health nursing force for the entire city (exclusive of school nurses in each case).

Instead of there being a number of nurses from different organizations visiting throughout the district, each nurse is in charge of a particular division of the territory in which she is building up toward a 100 per cent contact with all whom she can serve. There are 172 houses in the Mohawk-Brighton District in which there is more than one nursing service being performed by a single nurse and, in some cases, there are four or five services needed in the same household. The generalized plan of nursing has thus resulted in the elimination of duplication in all of these instances. Fully 75 per cent of the time spent by the average public health nurse in traveling from family to family is eliminated by this more intensive handling of services in a smaller district.



Waiting at the health station. Crowds of babies are present at every conference; 90 per cent of all children under six have been given a medical examination and are under nursing care.

All of these results were reached in the space of a few months prior to the beginning of the influenza epidemic. In three months, 756 influenza patients (not including 139 outside the district, handled as an emergency) were given nursing care. From 23 babies taken care of in December, 1917, the nursing supervision was thus extended until in August, 1918, it reached 967 patients, and during the entire year, 2,021, or about one in seven of the total population, exclusive of school children.

Work of Other Councils

Too much emphasis cannot be placed upon the impossibility of having built up so complete a health supervision without the citizens' council which is made up of the elected representatives from the 31 blocks in the district. Only a bare reference can be made to this unique neighborhood group which has been the most important element in the fundamental democracy of this plan for community organization for the purpose of com-

munity service. It is discussed more fully in literature issued by the social unit organization, which describes the part of this council of citizens in the whole plan of the unit experiment, also the census they have taken of the residents of the community, with special studies of the foreign born and the aged, and other features of their work of equal importance.

The social workers' council includes all the social workers in direct charge of social service in the neighborhood. Through this council and its frequent meetings, cooperation and harmony are assured in working out the best plans for the assistance of those in need of help in the district. From the point of view of the health worker, perhaps the most interesting development from the work of this council has been the demonstration that it is entirely feasible through a district organization of actual field workers to secure not only complete, but also continuous and intimate harmony in plans and efforts between social workers, nurses, and physicians.

A complete health program is impossible without attention to housing, recreation, and other matters recognized today as so essential to the normal healthful life. Space will not permit a discussion of these subjects and the cooperative efforts of the other councils of the community, such as the clergymen, teachers, wage earners and business men, in meeting these common problems.

That this experiment in preventive medicine and health administration is at least beginning to bring answers to some of the important health questions of the day is indicated by the interest of the members of the National Medical Council, headed by Doctor Franklin Martin, chairman of the medical division of the Council of National Defense, who makes the following comment:

"It is thoroughly sound and democratic, and will probably be used as a model in the reconstruction of medical practice after the war, or at least some modification of it."

Miss Ella Phillips Crandall, head of the National Organization for Public Health Nursing, is another of the national advisors who is helping this medical experiment through study, criticism and discussion. She says:

"I have held conferences with block workers and the executives of councils and staff workers of the social unit, and these have crystallized into a conviction my previous belief that the principles on which the social unit is built are fundamentally sound and practical. I am proud to have a part in helping it and to have had even a remote share in its work. I believe it is a living ready-to-hand expression of President Wilson's hope for community councils.

"I think that the results of the first year's (nursing) work are simply phenomenal."

Dr. René Sand, head of a Belgian mission sent to the United States, stated on a recent visit:

"The social unit plan of community organization, which is being tried out in Cincinnati, offers the most valuable suggestions for reconstruction work in Belgium which I have seen in America.

"I shall carry back to my people no more constructive suggestions than those which I have gotten from the 'social unit.'

This brief description of the health work in the Mohawk-Brighton district does not attempt fully to cover what has been accomplished by the community organization there during the past year. It gives but a partial picture of the plan of organization, as well as of but one phase of the work done. Plans for future community activities, such as the carrying out of housing standards by mutual agreement of landlords and tenants, the development of a thorough-going neighborhood program of recreation, the building up of the effective community bulletin into a real community newspaper, and many other things could be only referred to at the most.

It is hoped that no one will receive the impression that those active in the social unit experiment feel that it has found a solution for all of the pressing problems of the day. However, it is hoped that the spirit of altruism and community service, which has prevailed in the discussion of all phases of the work, is typical of the way in which the various groups will discuss even more fundamental questions of community organization and of social policy as they arise. If this is true, much may be hoped for from this form of organization, which brings all groups together, with the citizens of the community, jointly to study and to solve their social problems.

"Within certain limitations a people can have such hygienic conditions as they choose to buy. In other words, 'hygienic conditions' are purchasable, and they are safe-paying investments. No state government should delay making such investments on account of the cost. It is now well known from many demonstrations that even under the worst conditions a reasonable expenditure of public funds will afford such protection against disease as to pay large dividends, not only in the saving in human life and suffering, but also in dollars and cents.—B. S. Warren, Asst. Surgeon Gen. U. S. P. H. S.

The *American Journal of Care for Cripples*, edited by Douglas C. McMurtrie, which is the only special periodical in English on provision for the disabled, became a monthly with its January issue. Although dealing extensively with the rehabilitation of the invalided soldier, the Journal is in no sense a war product, as it is now entering upon its eighth volume. The Journal also continues as the official organ of the Federation of Associations for Cripples.

LIABILITY OF SURGEON FOR OPERATING WITHOUT PATIENT'S CONSENT

LESLIE CHILDS, ATTORNEY AT LAW, INDIANAPOLIS, IND.*

THE liability of a surgeon for operating without the consent of the patient is a question that has been rarely presented to the courts of last resort. Until quite recently there was but one such case reported in the English reports, and the American records ran them a close second.

But it is a question that is likely to be summarily brought to the attention of any surgeon at any time. Assume him to be in the operating room, the patient before him under the influence of the anesthetic, the operation perhaps commenced, when he discovers that the patient really requires another and quite different operation than the one consented to.

The question will then be, what shall he do? Shall he go ahead and operate in accordance with the newly discovered conditions? The probabilities are he will. In which event it will be interesting to know something of his liability, in case the patient afterwards discovers that fact, and possibly chooses to pin a law suit upon it.

The situation is not an impossible one, as the following case will prove. In *Mohr vs. Williams*, 95 Minn. 261, the defendant was a physician and surgeon of standing and character, specializing in disorders of the ear, and having an extensive practice. The plaintiff consulted the defendant concerning a difficulty with her right ear. The defendant examined the organ and advised that an operation be performed. At the same time he examined plaintiff's left ear but owing to the presence of a certain substance he did not make any diagnosis of the organ, and did not advise any specific treatment of the same.

Plaintiff consented to the operation being performed upon her right ear and the necessary arrangements were made. After placing plaintiff under the influence of anesthetics the defendant discovered that her left ear was in a more serious condition and in greater need of an operation.

He called the attention of plaintiff's family physician, who was present but taking no part in the operation, to the condition of the left ear. Thereupon the defendant decided to operate upon the left ear instead of the right, and the family physician making no objection, the operation was proceeded with.

The defendant performed the operation of osseiculectomy, removing a portion of the drum membrane and scraping away the diseased portion of the inner wall of the ear.

Afterwards the plaintiff brought an action to recover damages for an assault and battery. The plaintiff claimed that her hearing had been greatly impaired by the operation; that she had not previously experienced any difficulty with her left ear, and had not been informed, prior to the time she was placed under the influence of anesthetics, that any difficulty existed with reference to it; that she did not consent to the operation on her left ear, and that the action of the defendant was wrongful, unlawful, and constituted an assault and battery.

The defendant replied that there was an implied consent given; that it was a case of emergency such as to authorize the operation without the express consent of the patient. And further that there was evidence of implied consent in the fact that plaintiff's family physician was present and did not object to the operation as performed.

The lower court gave the plaintiff a judgment for \$14,322.50; however, a new trial was ordered on the grounds of it being excessive damages. An appeal was taken to the supreme court.

In passing on the case the supreme court said: "If the physician advises his patient to submit to a particular operation, and the patient weighs the dangers and risks incident to its performance, and finally consents, he thereby, in effect, enters into a contract authorizing his physician to operate to the extent of the consent given, but no further."

The court held: that the defendant had no authority to perform the operation without the plaintiff's consent, either expressed or implied; that consent was not expressly given and whether or not it was impliedly given was a question for the jury; that if neither kind of consent was given the operation constituted, in law, an assault and battery.

The proposition that the presence, and apparent acquiescence, of the plaintiff's family physician would tend to relieve the defendant of liability was disposed of by pointing out that the family physician took no active part in the operation; in fact, was there by request of the plaintiff more to allay her fears and give her more confidence. In effect holding that he had no authority, in this case, to consent to the operation as performed for the plaintiff.

*The first of a series of articles on "Law for the Doctor," written by Leslie Childs.

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., Editor

THE NEW ERA AND MODERN MEDICINE

WE have to thank the war for the great upheaval in our public thinking. Our social fabric has been rent. The air is full of social experiments. Never was there greater need for sane, constructive thought and action.

In the new social order it is to be hoped that the medical profession will not be found wanting, but will take its proper place and assume leadership in action looking toward the better day. To qualify, however, in these world movements, the profession must first take an inventory of itself and see whether its time-honored relationships measure up to the changed social condition, whether its organization, its methods of practice, its teachings, have kept pace with the new and greater needs for public health supervision, and the industrial development of the communities.

Is the profession as a whole actually coping adequately with disease and its attendant poverty, or are its old concepts breaking down before the task? If the latter is true, what social remedies has it to propose? The profession must either assume leadership in new medical organization and legislation, or it will have foisted upon it all sorts of quack legislation, devised by unmedical minds, that will not only *not* secure to the public the predicted improvement of community and personal health, but will still further lower the economic and social status of the physician. The profession is already carrying too great a part of the public's social obligation to the unfortunates of this world.

Conference and intelligent discussion of the future of medicine, a method of securing adequate medical service and health supervision for 100 per cent of the population along with proper financial returns for such service, is imperative. In self-protection, as well as to dignify his profession, every physician must become less of an individual and think more in terms of the mass and its problems as they relate themselves to medicine. This changed attitude will come more readily to those who have been in the service.

The profession must realize that the mobilization of man power for industrial and commercial life actually lies within itself; that we have had relatively too much science and research with too little organized application of our science to the great mass of the people upon whose health and productivity finally depends the wealth of the nation. We must learn to analyze carefully the modern preventive and curative needs of the community, and then fit our medical organization to these several functions, to the end that each medical man's minimum effort will produce the maximum desired result for improved health.

Upon the medical college, particularly, falls the obligation to keep abreast of the social needs and so to train men that the graduates may be truly useful to society as a whole. This means that its faculty members must not only modernize its course of teaching for undergraduates, but must make hospital and clinical teaching available to the practising profession so as to raise the general standards of practice. Diagnostic facilities, laboratory and otherwise, must be democratized; for the day is past when the favored few shall possess these advantages at the expense of the mass of the profession and the public.

These are but a few of the reflections that come to any physician in public health work, or to one who associates himself with industry and thus comes in contact with mass problems. Fortunately for industry, more fortunately for the industrial worker, happily for society and the profession, industrial medicine has taken a strong grip on the imaginations of all socially minded men. Social workers, economists, and constructive thinking minds see in this new specialty the answer to some vexing medico-social problems.

It is because MODERN MEDICINE promises to be an open forum for the frank discussion of the economic and social values in medicine that it deserves the encouragement of all forward-looking physicians. It is because of this hope that the editorship of this section was undertaken.

EDITOR.

MODERN INDUSTRIAL MEDICINE

BY C. D. SELBY, CONSULTING HYGIENIST U. S. PUBLIC HEALTH SERVICE, TOLEDO

IN Cincinnati, the evening of February 8, there occurred a most unusual development in the progress of modern industrial medicine. The faculty of the Medical Department, University of Cincinnati, wished to establish a course of training for physicians who desire to qualify for industrial service. Funds were not available. The desirability of the course and the financial requirements for conducting it were presented to representatives of the manufacturing interests of the city with the result that a committee of employers was appointed with instructions to procure the necessary funds. The meeting at which this action occurred was marked with enthusiasm, and the speed with which those employers decided to support the medical school in the training of doctors for industrial service was a convincing testimonial of their appreciation of medical service in industry.

If the action of the Cincinnati manufacturers is a criterion of the attitude of employers generally, it is indeed a gratifying indication to the physicians in industry of the success of their efforts and of the approaching realization of their ideals. To the medical profession, however, and to the faculties of the medical colleges particularly, there is in this action the suggestion of a warning, and that warning is this, that industry is well aware of the fact that ordinary medical training and experience do not necessarily qualify for industrial service.

Medical colleges should heed this warning and should supply opportunities for undergraduates to secure training that will enable them to apply their knowledge of the theory and practice of medicine to the needs of industrial workers.

Physicians should also heed this warning and, when desiring to enter industrial service, should qualify themselves in modern industrial medicine, which is now recognized as an important branch in the science of industrial management and a well defined specialty in the theory and practice of medicine.

Modern industrial medicine is a specialty of medicine. It is also a branch in the science of industrial management, and the usual medical training does not necessarily qualify a physician for practice in the industries.

The treatment of injuries is the most evident though by no means the most important reason for industrial medical service. The physical examination is basic to the maintenance of health. It should be thoroughly made, and findings should be followed up with frequent advice and observations so that employees may be instructed how to live and labor without impairment to health.

Every physician who has added something to the knowledge of industrial medicine should make that knowledge known.

During the first six months of 1918, the U. S. Public Health Service made a study of the medical and surgical care of industrial workers and, in September, detailed to the Working Conditions Service, of the U. S. Department of Labor, the personnel necessary for its Division of Industrial Hygiene and Medicine. This division immediately became a leading agency for the development of industrial medicine and, consequently, a

center of information concerning the medical service of industry. Certain conclusions resulted from observations made during the course of the study and were verified, or modified by experience in connection with the developmental work of the Division of Industrial Hygiene and Medicine.

These conclusions have been made the basis of a program of activities which may be said to constitute the program of modern industrial medicine—a program that industry expects physicians to be familiar with and competent to carry out.

Preservation of the health of workers and the treatment of the injuries workers sustain through employment are humane measures. They are likewise industrial obligations to society. Even so, the most satisfying results to employers from industrial medical service are the reductions made in the loss of time and the loss of efficiency from conditions that impair the functioning of the human body in its relation to work. It is toward these ends that the physicians of industry must direct their greatest efforts, as it is their accomplishments in these directions that give them standing and fix their value.

In seeking to gain these results, it is essential that industrial physicians (1) assist and advise in the selection and assignment of workers, (2) supervise working conditions in so far as they affect health, (3) aid the workers in the maintenance of their health and assist them to recovery when sick and injured, (4) cooperate for the betterment of home and community conditions, and (5) endeavor to enhance the knowledge of in-

dustrial hygiene and medicine. It may be emphasized at this point that industrial physicians should very wisely not allow the urgency of surgical care to detract from the importance of thoughtful attention to the related hygienic functions of medical service.

Selection and Assignment of Workers

The measures necessary for physicians to assist and advise competently in the selection and assignment of workers are discussed under four headings as follows:

1. *Standardization of Job Requirements.*—At present the greatest difficulties physicians have in the placing of employees are (a) the lack of standards concerning maximum effort, average continued continued effort and other conditions under which women and handicapped and even normal workers may labor effectively and without danger to health, and (b) the lack of standards of the requirements of machine operations, process work and all occupations common to the establishments. Investigations are being conducted to ascertain and fix such standards, but, obviously, time will be required for their completion. In the meantime, it is suggested that industrial physicians study and classify all of the operations used in their plants, indicating their physical and temperamental requirements to the end that they may advise more effectively in the assignment of the workers.

2. *Physical Examination of Workers.*—The purpose of the physical examination is to obtain information that will enable physicians (a) to assist in the placement and replacement of workers and (b) subsequently to assist and advise both employer and workers in the maintenance of the workers' health, the former in order that he will not cause the workers to labor under conditions that may be unfavorable to their health, and the latter in order that they may live as well as labor without impairment of health.

The physical examination is basic not only to the proper assignment of employees, but also to the maintenance of their health, for without the knowledge gained through the examination no physician can intelligently advise either the employer, or his employees. In view of this, it is suggested that physicians examine workers (a) prior to employment and re-employment if the periods of absence warrant; (b) upon transfer; (c) upon termination of employment if they have been engaged in process, or other hazardous work; (d) after absence due to serious sickness, or injury not under observation; (e) when they do not feel well, or appear sick; (f) upon continued failure to measure up to the standards of

production, unless the reason is evidently not physical; (g) when engaged in process, or other hazardous work (monthly, or more frequently if necessary); (h) when handling food supplies (sufficiently often to safeguard against communicable diseases); and (i) when pathological conditions have been found (sufficiently often to guard against further impairment).

3. *Vocational Placement of Workers.*—During the war the physical examination of applicants for employment was discontinued in some establishments because the only evident result was the rejection of the unfit, a result that employers were not particularly interested in obtaining at that time when labor was scarce. To examine only is not sufficient. The findings must be analyzed—this applies to normal as well as handicapped workers—and, through cooperation with employment departments and foremen, must be used in the assignment of the workers.

The Right Man in the Right Place

Applicants are usually hired for certain operations. For illustration, let it be assumed that a man has been hired as a molder in a foundry. The physician should know what will be exacted of that man and, having examined him, must be able to say with certainty whether or not the man is physically and temperamentally qualified to do that work without impairing his health and with average physical efficiency. If the doctor finds the man unqualified; that, for instance, he has insufficient musculature to handle core boxes and castings, then the doctor should be able to suggest the work he is capable of doing. To do this in a manner satisfactory to all persons concerned, physicians must, as already indicated, have intimate knowledge of the various operations used in the plants, skill in interpreting physical values as revealed by the examinations and a close co-operation with employing offices and foremen.

4. *Instructions of New and Transferred Workers.*—Sometimes special instruction is necessary in order that workers may adapt themselves to their jobs and safeguard themselves against hazards that cannot wholly be avoided. This applies, for example, to workers in lead, TNT, and other poisons, also to female and handicapped workers under certain conditions. Physicians may reasonably be expected to offer instruction of this nature at the time of examination, which is an opportune time, and to do so they must be (a) familiar with the hazards of their plants, (b) prepared to instruct employees when necessary, and (c) supplied with pamphlets for distribution among those employees selected for the hazardous jobs.

Hygienic Supervision of Working Conditions

Because of their knowledge of the human body, physicians may be expected, when they assume industrial service, also to have knowledge of all working conditions in their relations to the health of the workers. They may be expected further to exercise such supervision over working conditions as is necessary to protect the workers from unhealthy conditions. The measures essential to supervision of this character are discussed under three headings as follows:

1. *Inspections.*—Obviously physicians cannot supervise working conditions, unless they have intimate knowledge of the conditions existing in their plants. For the procurement of this information it is suggested that they, or their assistants, make periodical tours of the establishments. Conditions specially to be sought and studied are: (a) monotony, (b) concentration, (c) isolation, (d) speed, (e) overtime, (f) inadequate ventilation, (g) poor illumination, (h) excessive variations in temperature, (i) excessive variations in humidity, (j) harmful dusts, (k) gases and fumes, (l) poisons, (m) inadequate sewage and waste disposal, (n) inadequate toilet, washing and locker facilities, (o) unsafe drinking water, (p) workroom congestion, (q) poorly adapted workroom clothing, (r) unnecessary noises, (s) lack of mechanical safeguards (if safety service is not otherwise provided for), and (t) workroom disorder.

2. *Investigations.*—Certain processes, operations, and methods required by industry are known to be harmful to health; others are suspected of being so. While investigations have been made and conclusions have been reached in regard to many health hazards, there are yet great opportunities for the enrichment of knowledge in this direction. It is devoutly to be hoped that industrial physicians will accept their many opportunities to study particularly those hazards that are not well understood and to determine means for their prevention.

This Factory Needed Physician's Service

A Cincinnati manufacturer recently remarked that a process he was forced to introduce in his plant in order to supply certain materials for war purposes resulted in sickness among the workers. He sought the advice of physicians for the cure and prevention of this sickness without appreciable success. This is one of a number of illustrations that may be cited as an indication of the opportunities awaiting the physicians of industry and, incidentally, the paucity of general interest in the researches necessary to make industry safe for the workers.

3. *Instruction of Foremen and Management.*—

While production is paramount in industry, employers certainly do not wish to jeopardize unnecessarily the health of the workers. If working conditions are such that harmful effects do or may result, the assumption is that the employers are not aware of them, nor informed on means for their correction. These matters are left very properly to physicians and sanitarians, and the initiative in the correction of unfavorable conditions must necessarily rest with them. It is suggested, therefore, that industrial physicians take special pains to inform employers and foremen tactfully but clearly of (a) the existence of unhealthy conditions, (b) their harmful effects and (c) means for their correction.

Health Maintenance

While it is true that unfavorable working conditions are capable of impairing the health of workers, they are not alone responsible for impaired health. Much depends upon the workers themselves and the manner in which they live and sustain themselves. Although the workers are free agents and privileged to live and sustain themselves as they see fit, physicians are able to assist them greatly through advice and service in the maintenance of health. As an aid to efficiency and production, employers realize the advantage of extending their workers assistance of this nature, particularly in so far as relates to the maintenance of health during hours of employment, and quite naturally they look to physicians for this assistance. Activities in this connection are discussed under six headings as follows:

1. *Health Instruction.*—Unfortunately the knowledge imparted through our general system of education does not teach people the essentials of hygiene and health maintenance, and consequently workers may be expected unknowingly to violate the rules of health. In order that they may not be so handicapped, it is suggested that industrial physicians endeavor through lectures, personal talks, bulletins, posters, articles in shop papers, etc., to instruct workers in (a) personal hygiene, (b) proper clothing, (c) proper food, (d) recreation, (e) rest, (f) exercise, (g) prevention of communicable diseases, (h) personal habits, etc.

2. *Provisions and Facilities for Care of Health in the Plants.*—Instruction in the maintenance of health is not alone sufficient. Provision must be made and facilities furnished within the plants in order that workers may be induced and enabled to apply the principles of health maintenance during working hours. Although industrial physicians have manifested little interest in this direction, it

is reasonable to believe that their knowledge is such as to qualify them to advise on, if not to supervise, all activities necessary to prevent fatigue and the impairment of vitality. In applying their knowledge to this end, it is recommended that physicians direct their attentions to (a) the procurement and operation of facilities for rest, recreation and exercise, (b) the designations of workers who should have the benefits of rest, recreation or exercise, and (c) the conditions under which they should avail themselves of these benefits. It is further recommended that physicians interest themselves in (d) the procurement of refreshment facilities (restaurants and refreshment stations), (e) the supervision of restaurants, refreshment stations, kitchens and storage rooms for food, and (g) the daily inspection and monthly examination of all food handlers (for prevention of communicable diseases).

3. Prevention of Communicable Diseases.—The necessity of preventing, or at least controlling, communicable diseases among industrial workers is evident. The difficulty is in applying the measures necessary. Theoretically, it might appear that a daily inspection of all employees by physicians, or their assistants, would serve to bring communicable diseases to attention in their incipiency. However, in large establishments this is impracticable, although in times of epidemic serious efforts should be made to carry on such inspections. Under ordinary circumstances, physicians should arrange with foremen to require all employees who have the appearance of being sick, especially those who have eruptions, and those who do not feel well to report at the dispensary for diagnosis at least. It is scarcely necessary to mention in this connection that all who are found suffering with communicable diseases should be excluded and health authorities notified of all reportable cases. The rapid development of vaccines and other immunizing agents has opened up for the industrial surgeon a field prolific in opportunity for the prevention of certain communicable diseases.

4. Treatment of Trivial Illnesses.—It seems industrial workers, as well as others, are prone to neglect non-incapacitating illnesses, such as colds, headaches, constipation, etc. As these are sometimes early symptoms of more serious illness and, therefore, the forerunners of incapacity and lost time, employers have found it beneficial to the workers, as well as advantageous to production, to have all trivial ailments that become evident during working hours treated by their physicians. In the interest of efficiency and for the maintenance of health of industrial workers, it is therefore suggested that physicians encourage workers

to seek treatment for the relief of trivial illnesses, occurring during the hours of employment, which they ordinarily would neglect.

5. Prophylactic and Emergency Dental Attention.—Inasmuch as neglect of teeth, which is quite prevalent, results in a variety of infections and other disabling diseases, employers are finding it to their advantage more and more, and to the benefit of the workers, to provide prophylactic and emergency treatment of teeth. Prophylactic dental treatments are of great educational value in the maintenance of health, and the treatment of dental emergencies—toothache, etc.—arising during working hours is useful in giving relief and enabling workers to continue employment. The industrial physicians are urged to secure personnel and facilities for dental service and to encourage the workers to avail themselves of it.

6. Surgical Treatment.—The most evident reason for the existence of industrial physicians is, of course, the treatment of injuries. This is mentioned at this time to indicate the fact that the surgical treatment of injuries is a function necessary to the maintenance of health, and also to emphasize the fact that it is but one of several important functions. The importance of surgical service is determined largely by its emergency features. Measures which obviate the need of surgical treatments, and also medical treatments, would seem to be equally essential and of perhaps greater importance. Also, reconstructive surgery, which has recently come to the attention of industrial physicians, brings to them the suggestion that they can very well initiate rehabilitation measures early in the care of injured workers. Reconstruction and rehabilitation may also be applied to the benefit of workers who are handicapped because of hernia and other more or less incapacitating conditions.

Better Home and Community Conditions

Employers may be exceeding their responsibilities when they endeavor to assist workers in handling difficulties which arise in their personal affairs and when they attempt to improve community conditions, yet employers have a definite interest in these matters in so far as they cause worry and impairment of vitality among the workers.

1. Social Aid.—The position which physicians occupy in the lives of people confers upon them, to a certain degree, the responsibility of advising with them in the solution of problems that are more or less of a personal nature, as well as of interest to community life. It is suggested that physicians take advantage of this relationship (a) to advise and assist workers in

the adjustment of social and financial troubles, (b) to encourage thrift, domesticity, sobriety, morality, and (c) to offer instruction in health and sanitation. In those establishments which have sociological departments, physicians may be expected to cooperate with them in the foregoing activities.

2. *Medical Aid*.—Sometimes workers are unable to obtain for themselves and their dependents adequate medical, dental and nursing attention and, although employers may not be responsible, they realize that sickness in the families of their workers may be a source of considerable worry and, therefore, detrimental to production. Because of the knowledge which physicians have of doctors, dentists, nurses, hospitals, clinics, and nursing relief societies in their communities, it is suggested that they endeavor to assist in providing adequate medical service for the workers and for their dependents when they are unable to procure it for themselves. Actual nursing aid may be given with advantage for short periods by the visiting nurses of industrial establishments, acting under the directions of the patients' own physicians.

3. *Community Aid*.—Through their relations with workers in connection with the foregoing activities, industrial physicians frequently become aware of community conditions which are unfavorable to health. It is highly desirable that they use this information, when they can consistently do so, for the betterment of community conditions; in so doing, they should act in cooperation with national, state, and local health authorities, with other industrial establishments and particularly with the social agencies of their communities. With respect to the last mentioned, the attention of industrial physicians is drawn to the fact that employers are large contributors to charity. Any assistance that their physicians may be to those charities in which they are interested will undoubtedly be appreciated by them.

Enhancement of Knowledge

Industrial medicine is new. It is yet in its developmental stage. Only by the contributions of interested physicians can it be developed further. Every man who has added something to the knowledge of industrial hygiene and medicine owes it to industry and to medicine to make that knowledge known. It is also incumbent upon industrial physicians that they make studies of the material which they have at hand in their own establishments and endeavor to stimulate their own assistants and attendants in the pursuit of researches. Unfortunately, industrial physicians as a rule find their time taken up with routine

work and because of this they are, perhaps, unconsciously in danger of becoming restricted in their breadth of knowledge and limited in their scope of activities. To obviate this tendency, it is recommended that they hold meetings of the personnel of their own establishments, when of sufficient numbers, for the study and discussion of those matters that concern the health problems of their industries. It is also suggested that they arrange with their fellows in other establishments for conference groups for similar studies.

Opportunities of Industrial Hygiene and Medicine

No branch of medicine has come so prominently to the front in recent years as industrial medicine. Industry and the medical profession both have been surprised to discover in it wonderful opportunities for usefulness in the conservation of health and limb and through this for the promotion of industrial efficiency and the facilitation of industrial production. In view of the inestimable opportunities which industrial service offers physicians to exercise their knowledge and skill not only in the behalf of industry, but also in the behalf of the industrial workers, it is suggested that the physicians of industry bring themselves to a full realization of the dignity of their profession and the value of the service they are capable of rendering. This can be done only by their concentration of time and efforts to the service and their complete availment of the opportunities it offers for the prevention of illness, as well as for the treatment of injuries.

CINCINNATI BOOSTS INDUSTRIAL MEDICINE

A group of one hundred Cincinnati business men have pledged their support to the Cincinnati University in establishing a department in the Cincinnati University Medical School for the training of industrial physicians.

Dr. Otto P. Geier and Fred A. Geier, president of the Cincinnati Milling Machine Company, invited discussion of the plan at a meeting held recently at the company's plant. Dr. C. D. Selby of the Industrial Hygiene Division of the U. S. Public Health Service, who has just completed a survey of one hundred and fifty medical departments in industries throughout the country, pointed out the ideals of industrial medicine and explained the qualifications of industrial physicians sketched. He indicated the necessity for special training for physicians for the new type of work.

Major C. R. Holmes, dean of the Medical School, then set forth the immediate needs of the medical school if such a department were created. He suggested a guarantee fund of \$15,000 a year for five years, or a permanent endowment support to yield \$15,000 a year to be raised by subscription.

John A. Lapp, director of the Ohio Health and Old Age Insurance Commission, indicated the extent of the problem of sickness in industry by citing statistics to the effect that twenty per cent of all workers have a disabling sickness of more than one week every year.

A PROGRAM OF HEALTH AS APPLIED BY THE AMERICAN PULLEY COMPANY

BY WILLIAM ALFRED SAWYER, B.S., M.D., CHIEF OF DEPARTMENT OF HEALTH AND EMPLOYMENT, PHILADELPHIA

OUR present-day civilization is essentially an industrial one. It has long been conceded that the fitness of the factory—its machinery and other equipment—is a responsibility attaching to the employer, whose financial interests are served by its perfect adjustment, but the fitness of the employee as an industrial asset has been ignored altogether, or has been regarded as the employee's own individual problem. There is, however, a growing appreciation of the effect of physical and mental adequacy of the employed upon the returns of business and the well-being of employees is becoming one of the most cogent factors of business management today. In the consideration of the human potential, we are concerned that its functioning be adequate, whether viewed collectively or individually, a condition which cannot obtain without due regard to the laws of health and compensation, and which is naturally limited by the range of general adaptation of the individual worker.

We may safely conclude, and our study and practice will bear us out, that a workman is capable according to his possession of (1) health; (2) freedom from worry (which presupposes adequate compensation in the form of both wage and opportunity); and (3) natural and educational adaptability for the work engaged in. The more capable the worker, the greater the asset to his employer, and the wide-awake employer is coming to prefer a selection of employees upon some such basis.

1. In our analysis of health we find a limiting clause: What are we to do with the great number of individuals having ailments and disorders, inadequacies and disabilities? They must work and, if properly placed, in most instances can do so acceptably and without augmenting their limitations. Health supervision must be sympathetic as well as intelligent.

2. All problems must be considered that pertain

AXIOMS OF THE FACTORY

PHYSICIAN

We must have health among our employees; without it production cannot be kept up.

When an employer aims to keep his workmen healthy he shows sound business judgment as well as decent human interest.

In industry a physical examination is a safety first move for the company, for the men of the plant, and for the applicant.

The proper spirit engendered within the plant will spread to the home and through the surrounding community, and the plant becomes a definite social asset.

to spiritual contentment and that help to instill some bit of divine discontent, or ambition, for contentment and ambition should be inseparable. To this end the worker must be provided good surroundings, careful assignment of tasks, considerate instruction and such facilities, supervision and cooperation as will develop and maintain the greatest productiveness. The people may be considered *en masse* for one purpose

or another, but back of all collective forces is the individual, and the only way to reach the mass is to influence, appeal to, and better understand the individual. An underlying cause of much of the present-day restlessness and discontent is the lack of a proper estimation of the relationship between physical and social strain.

3. The relation between mental capacity, powers of endurance, and a consistent health program is clear. The advisability of some standardization of mental capacity and of trade tests to determine natural fitness or adaptability is not so obvious, but wherever these methods have had a fair application their efficacy has warranted the measures. The discovery of an individual's limitations protects him against the failure of a misfit. Success and contentment are promoted and the interests of all are served.

So much investigation needs to be made, so many observations are to be checked and correlated before final conclusions may be drawn, that each center of consistent endeavor to know and meet social and industrial problems should report its methods and results. The plan at the American Pulley Company (Philadelphia) has involved: preliminary physical examination, periodical physical examination, dental care, rest and recreation, dispensary service.

Preliminary Physical Examination

The physical examination which we give at the American Pulley Company to all promising ap-

plicants is in no sense so complete as that made by insurance companies or the army or navy, and, while the man we pass might be a good policy risk or fighting chance, we aim to accept only good working possibilities. For that purpose it is sufficient to detect conditions that might soon prove harmful to the man himself or to those with whom he works. We reject all cases of hernia, offering to send them for care to the best talent the city affords. Our examination eliminates a man unless he can see with both eyes, and it excludes anyone with such errors of vision that he would be unable to avoid the hazards of shop and yard. A man whose vision is subnormal is at

nothing seriously wrong. On occasions men and boys have bolted from the employment office upon discovering that a physical examination was necessary. We have even had some admit that they could not pass an examination. This perhaps explains why we have not seen many cases of venereal infection, and comparatively few other abnormal conditions. For this and other self-evident reasons the effort is worth all that it costs.

Periodical Physical Examination

Usually when old hands bring friends for a job, they say: "If he can pass the examination, he'll make a good man." They have come to re-



Room for examinations and first aid

the best not an efficient producer, and is prone to many disorders of reflex nervous origin. Usually we have offered to employ these men when they would secure proper glasses. We avoid putting a man with an impaired heart on work which might further injure it. We feel that the protection to the plant from the exclusion of contagious diseases is alone worth a great deal. In making the examination we are brought closer, through the vocal and physical responses, to the mental status of the applicant, and this is surely an important element in estimating his value to the force.

We believe that a plant which examines physically soon establishes a reputation in the community among the workers, and that only those apply for work who are reasonably sure they have

spect it, and I am sure that once adopted into the routine of hiring, it will never be abandoned.

While the healthy workman is rapidly becoming an objective of the wise employer, it is certain a workman's own health means still more to himself. We are aware, however, of the average workman's ignorance and indifference to the value of keeping physically fit. Many choose jobs for which they are constitutionally unfit, and so expose themselves to accidents or sickness; others do not know how often it is ill health that fags them out, or how largely their habits are contributing causes. Whatever the cause of poor health, or wherever the responsibility may lie, it is quite evident that any decline in health results in financial loss to both employer and employee.

When, therefore, an employer aims to keep his workmen healthy, he shows sound business judgment as well as decent human interest. At last the prudent employer is finding it a good investment and a cause for personal satisfaction to look after his employees' health by maintaining a general oversight of their physical condition, so as to detect and remedy in time those subtle, unsuspected diseases that make men "rusty" or that tend to throw them "out of gear."

Reexamination should be made at least yearly, perhaps every six months in certain types of industry. When a worker is absent rather often or for any extended length of time without ap-

ship of physical impairments to capacity for work, for constantly we are gaining more and more knowledge of the increased number of ways that incapacitated individuals can employ themselves.

In industry a physical examination is a "safety first" move for the company, for the men of the plant and for the applicant. The latter is often unaware of the defects he is harboring and usually appreciates an unprejudiced opinion. To my mind, the physical fitness of the worker should be the basis of his selection. Perhaps I view this matter only through the eyes of a physician; be that as it may, I certainly believe that a human service department must build itself on health



Wash basins are placed in surroundings that have a general aspect of cleanliness.

parent reasons, or because of evident poor health, an examination should be made to determine to what extent his working conditions may be responsible. At each reexamination a comparison should be made with the record of the previous inspections to see wherein the individual is improving or deteriorating. In each case the worker should be apprised of his condition and given complete instructions as to the best course to pursue. So often the routine tests are made with no remarks whatever to the employee, as if putting data on a record card were the sole aim of the proceedings. Each examination must be in a sense an instruction period, and all possible information should be imparted. At the time of reexamination it is possible to make studies of the relation-

work, and one of its first essentials is the selection—for the sake of industry in all it involves now and in succeeding generations—of men fit to assume the burden. That does not mean that large numbers will be ruled out; it means that men unfit for hard, laborious work will eventually be directed into safe places, and those with defects which can be corrected will virtually be forced to attend to their health before expecting the better grades of jobs. We want to save men for industry and not destroy them.

Naturally, there is always the question: Has industry a right to throw upon the community men physically imperfect? Yet, when it is recalled that probably 60 per cent of these substandard conditions are remediable, being simply the

result of ignorance and neglect, is it not time that industry should do what it can to detect and alleviate?

Dental Care at Minimum Cost

We are only beginning to scratch the surface with regard to measures to preserve normal, healthy teeth. There can be no doubt as to the wisdom of thorough dental examination with insistence and follow up, in many instances, to see that decayed conditions are corrected. Often it is possible for large plants to furnish dental work at a minimum cost, at least for work of an urgent character. It will save much time lost.

sending the man to a hospital for further care. Our men are encouraged to consult the doctor of the plant concerning any illness whatsoever of their own or of those in their families. They now come, as we want them to, with very minor ailments, and we think are beginning to be healthily interested in maintaining a good physical condition. In no place is the proverb, "An ounce of prevention is worth a pound of cure," more completely fulfilled than when applied to health. Here, to cure is a science, to preclude an art. Our work should be and must be more largely prevention of sickness, and we should offer the workingman an opportunity whereby he can consult proper author-



View of athletic grounds. Baseball game in progress.

Rest and Recreation

Every plant should make provision for rest and recreation, the periods of rest and the kind of recreation to be in accordance with a plan worked out according to the special industrial and social needs of the workers. The illustrations of this article are taken from Building No. 25 for the convenience of our workmen and for safeguarding their health, and represent the trend of our health and welfare work with regard to rest, recreation and provision against undue strain as one of the most essential features of health supervision.

Aside from the examination of a man to determine his fitness to become one of our force, we treat all usual accidents occurring in the plant, and give first aid to any of a serious nature before

ity concerning incipient illness. There is a wonderful point of approach by means of the dispensary. We all know how much more freely a man will talk with his doctor than with any other man. An industrial doctor who simply cares for those injured and makes only his regular physical examinations is not exhausting his possibilities for usefulness to the plant he serves and he cannot do so until he assumes a more vital relation to the welfare of the men. Dr. Geier of the Cincinnati Milling Machine Company has voiced my own thought along this line and crystallized it in such adequate language in his paper on "The Human Potential in Industry," that I shall quote him:

"The activities of the human service department should be founded on intensive health work. Health is our most

vital possession. The mere act of conserving the health is ennobling. Healthy bodies promote right thinking, right living, good habits, and it is upon such factors that intelligence, stability and loyalty are engendered. Unless we have these things, our employment departments, struggling with the labor turnover, our mutual benefit societies, and loan associations, our restaurants, cooperative buying, our sanitary measures, will meet with but half of the deserved success."

The proper spirit engendered within the plant will spread to the home and through the surrounding community, and the plant becomes a definite social asset.

Deprive None of Hospital Care

In looking after our men I have been very much impressed with the difficulty of securing sufficient and satisfactory care for them when ill. Despite Philadelphia's numerous hospitals, I have often found their facilities inadequate. Can you imagine the power and usefulness of a hospital in which there were no preferred classes, a hospital conducted solely for the men of our industries and their families? Such a hospital, founded upon the broadest humanitarian principles, would act also as a center for health education, and would soon become an institution of ever-increasing authority and usefulness. The fear of such places, which now so largely exists, would give way to dependence and confidence. So few of our men or of those in their families who fall ill are able to get proper care at home that with the services of such a hospital the time away from the job could often

be greatly reduced and much of the present strain upon their resources lessened. I should like to see some such plan as this, together with plant medical supervision, augment compulsory health insurance.

The sense of the responsibility of the employer to the employee will doubtless continue to increase. This responsibility would, of course, better be voluntarily assumed and should go hand in hand with cooperative effort along all lines of industrial relations. The employer will assume his part in such things as housing, transportation, supplies, education, morals and recreation. The opportunity is obvious; the responsibility will be assumed by some one and to him will go the prestige, leadership and success. To big business this opportunity is presented more profitably than ever before. In view of the physical shortcomings as brought forth by the examination of our young men for the army, does it not behoove us to about face and see wherein industry can profit by this experience? We must have health among our employees; without it, production cannot be kept up. Industry cannot make the rapid strides necessary in these momentous times. We must have these examinations upon entry to the plant, and periodic examinations at intervals of six months or a year thereafter. The social group is better for the aid to each individual unit, and everything that means Americanism in its best sense must be made possible for service and production.

ACUTE SEPTIC INFECTIONS OF THE FINGERS

BY ARRIE BAMBERGER, B.S., M.D., ASSOCIATE IN SURGERY, MEDICAL DEPARTMENT UNIVERSITY OF ILLINOIS, ATTENDING PHYSICIAN COOK COUNTY HOSPITAL, CHICAGO.

PROBABLY no surgical condition is of more importance and requires more careful treatment than do the acute infections of the fingers. To the workman a loss of function of one or more fingers often means the loss of his occupation and final pauperism. There are numerous classifications of acute infections of the fingers, many of which are ambiguous and cloud the minds of the practitioner as well as the student. The older terms—paronychia, whitlow, and felon—I believe should be discarded, as they do not designate precisely any type of finger infection. The better classification is the pathological one, naming the exact structures of the finger involved: the subcuticular infection, immediately under the epidermis or cuticle; the subcutaneous infection, involving subcutaneous tissue; the tenosynovitis, involving tendon sheaths; and osteomyelitis, involv-

ing infection of the bone. One or more of these types of infection may exist, by simple extension of the infection from one structure to the next underlying one.

Etiology.—External trauma of any description—scratches from fish scales and meat bones, and manicuring of nails in which the cuticle is cut too close to the skin—are the frequent causes of septic infections of the fingers. An adjunct cause, if we may so term it, I believe is the indiscriminate use of hydrogen peroxid after an injury; especially so if foreign material has been introduced into the wound. The first step that usually the layman takes, and indeed many physicians, in cleaning a wound of the finger is to wash that wound thoroughly with hydrogen peroxid. From the many cases of infections of the fingers which I have seen following the use of hydrogen

peroxid in the fresh wound, I feel firmly convinced that the gaseous oxygen liberated by the peroxid in the wound forces the bacteria into the healthy as well as into the injured tissues, and thus produces infection which otherwise would not have occurred.

Symptoms.—All of the types of acute septic infection of the fingers produce pain in the affected part, and more or less swelling. The subcuticular type of infection manifests itself by a bleb-like formation, which contains a serosanguinous fluid; the pain and tenderness is slight. In the subcutaneous type, which is most frequent, we find the involved area markedly swollen, red, tender, and fluctuating if pus is present; lymphangitis and neighboring lymphadenitis are frequently present, especially in the streptococcal infections and in those in which there is no free drainage. In tenosynovitis there is severe deep tenderness over the sheath of the tendon involved, and the patient does not move the finger because of the great amount of pain on the slightest movement of the tendon. In osteomyelitis of the phalanges and septic arthritis of the interphalangeal joints there is a very hard and large swelling, much greater than in any of the other types of infection. The tenderness and swelling is deep—that is, it does not involve the subcutaneous tissue alone, but involves the deeper structures. Usually, in a subcutaneous type of infection, when the swelling does not subside within seven to ten days, but remains stationary or increases, we are then dealing with a bone infection. When the osteomyelitis begins, there is a great deal of pain, which subsides after four to seven days, but the swelling persists and pus continues to drain from the wound. An x-ray picture will show the necrotic bone.

Treatment.—Prophylaxis is most important. In an injury of the finger the foreign material, if present, should be removed. The tissue adjacent to the wound, but not the wound itself, should be washed with green soap and water. The wound itself should be first lightly touched with a pledget of cotton soaked in bichlorid of mercury, solution 1:5000 dilution (no rubbing should be done), and then swabbed with tincture of iodin. A hot boric acid dressing is then applied, which should be renewed in twelve hours, and so continued until the wound shows signs of healing, when a dry dressing is applied if no infection is present.

Active Treatment.—In all types of finger infections where pus is present, incise and drain the part. The incision should be a large one and a crucial incision; the longest part of the incision is made in the longitudinal direction, while short transverse incisions are made through the skin only in order to keep the wound from closing too

rapidly. A probe is passed into the wound, so that any pockets can be located and opened up along the course of the probe. When a tenosynovitis is present, the infected sheaths are opened up and drained. When an osteomyelitis is present, after the x-ray shows the necrotic bone well demarcated, under gas anesthesia the necrotic bone is removed and the fistulous tract curetted. I do not believe in temporizing in these cases, waiting for the bone to slough off by itself. If this latter method is used, I find that more bone becomes involved, and a much longer time is consumed for the recovery of the patient. For drainage I use sterile gutta-percha tissue folded into small strips, which is much superior to the gauze drains, which become dry and stiff from the secretions of the wound, and then act as a plug in the wound rather than a drain. The gutta-percha is smooth, non-irritating, keeps the edges of the wound apart, and in no way plugs up drainage as does gauze. Hot boric dressings are used, and it is important to use enough gauze in making the dressing—not two or three layers of gauze, but ten to twenty. A window is cut in the bandage, so that hot boric acid solution can be poured into the dressing every hour, and the entire dressing is changed every twenty-four hours.

Summary.—The points to be emphasized are:

1. Hydrogen peroxid should not be used as a first-aid cleansing measure; the oxygen liberated forces infection into the tissues.
2. Early diagnosis of osteomyelitis and early excision of necrotic bone are important.
3. Large incisions are called for in all infections of the fingers.
4. The use of gutta-percha tissue as drainage material instead of gauze is advisable.

NO PHYSICIAN—NO FACTORY

The subject of industrial medicine has invaded the lay journals and it is not uncommon to find discussions of it in business periodicals, also. The health of workmen has come to have an intensive interest to employers and managers because "it pays to keep skilled employees on the job instead of hiring poor substitutes to cover periods of illness."

Dr. Ralph W. Elliott, of the National Lamp Works, Cleveland, described in *Factory*, the magazine of management, for February, the work which his company does to keep the men well. He told of the health education work, the treatment of minor ailments, the prevention of contagion, the treatment of colds, the necessity for dental examinations, provisions for first aid in case of accident, and the value of sanitary surroundings.

A significant statement is quoted, showing the approval by employers. "If I were planning," said a factory executive, "to start up a manufacturing plant today, but could not install a medical department at the start because of a lack of financial means, I wouldn't start the factory at all."

CARBON MONOXID POISONING

BY A. J. LANZA, SENIOR SURGEON, U. S. PUBLIC HEALTH SERVICE, CHIEF DIVISION OF INDUSTRIAL HYGIENE AND MEDICINE, WORKING CONDITIONS SERVICE, DEPARTMENT OF LABOR, WASHINGTON, D. C.

THREE is no subject included under the general scope of industrial poisoning or occupational illness more interesting or of greater practical importance than carbon monoxide poisoning. Not only is exposure to this gas prevalent in a great many industries, but it is intimately associated with heating and illumination of the home. Kober and Hanson mention thirty-four industries where CO poisoning may occur, and Doctor Albaugh states that there are at least thirty such industries in the state of Ohio alone. Besides being recognized as a definite hazard of various processes in many industries, CO poisoning occurs under the strangest and most unexpected circumstances. Indeed, so unusual are the circumstances of CO poisoning at times that its nature may not be recognized until a succession of fatalities reveal the true cause. It is a fruitful cause of death, from the individual who is overcome while tinkering with his automobile in a small garage to the wholesale slaughter that occurs in mine fires or explosions.

The prevention of CO poisoning depends on a proper recognition of the possible sources of the gas and the taking of precautions to prevent those necessarily exposed to it from being overcome. Caused chiefly by incomplete combustion of carbonaceous material, it is impossible to prevent the formation of this gas under a multitude of different conditions. Where there is reason to believe that carbon monoxide is being liberated into the air of a working place with more or less regularity, due to the nature of the process involved, the air of such place should be sampled and analyzed from time to time. It being established that there is a carbon monoxide content in the air, every effort should be made to remove it. Leaks in mains, conduits, pipes or other carelessness on the part of the management or of employees may be responsible, in which case the remedy is evident. In other places or processes it may be possible to remove the gas by proper hooding or exhausts, or when such form of removal is impracticable there should be free and open ventilation, with every facility for exchange of inside and outside air.

There will of necessity be many occasions where carbon monoxide cannot be prevented from polluting the air where men may work, even if only temporarily, and where also the gas cannot be readily removed. The nature and location of the

work will determine the course to be followed, but in any event carbon monoxide cannot be treated with too much respect. It may be accepted that where CO is known to be present or suspected of being so, no man should be allowed to go unattended or unwatched, even when wearing oxygen apparatus. When it becomes necessary, as in times of emergency or disaster, for men to penetrate an atmosphere containing CO, not less than six or seven men should be allowed to go in a party, even when equipped with oxygen apparatus. Under many occasions the prevention of CO poisoning will depend on the intelligence and watchfulness of the individual. The person engaged in regulating his motor car, the workman in fire or boiler rooms, the man working around blast furnaces and by-product coke ovens, the miner and many others should always remember the insidious and dangerous character of the gas to which they are exposed. Prevention lies, then, largely within the domain of "safety first."

Relative to continued exposure to CO, the effects of which are discussed later, men should not be allowed to work steadily in an atmosphere which contains even minute quantities of the gas. If the gas cannot be removed, men should be moved from time to time.

The treatment of carbon monoxide poisoning is a matter of some dispute. The actual effect of CO gas is the subject of controversy and the status of chronic CO poisoning is not clear. In 1916 Professor Yandell Henderson, holding the chair of physiology at Yale, and acting on the United States Bureau of Mines committee on resuscitation from mine gas, as a result of certain experiments and experiences, made announcements relative to the action of CO that were at variance with previously accepted theories. Briefly, Doctor Henderson concluded:

"Carbon monoxide is physiologically harmless except in its affinity for hemoglobin. Its toxic effects are wholly due to the inability of the blood combined with CO to carry oxygen to the tissues.

"Carbon monoxide does not form a permanent compound with hemoglobin, but is rapidly separated from it in the presence of pure air or oxygen.

"The continuance of coma or after effects of CO are not due to retention of gas but to the results of injury to the tissues due to the insufficiency of oxygen while the gas was being inhaled.

"Therefore," Doctor Henderson concluded further, "in CO poisoning neither transfusion nor bleeding is beneficial, oxygen inhalation is of value for a brief period only, say half an hour, and exposure to fresh air and symptomatic treatment are all that are really required."

Previous to this announcement, it was generally accepted that the combination of CO with hemoglobin was a permanent one, or at least of a very tenacious nature. Personally, as far as our experience goes, I am inclined to agree with Doctor Henderson's conclusions. While associated with the U. S. Bureau of Mines in work relating to mine hygiene it was the custom to take samples of blood from persons overcome by mine gases, whenever possible, especially if engaged in rescue work and wearing oxygen apparatus. In a series of fatal cases we found discrepancies in the CO content of the blood and never in sufficient concentration to produce death. On going into the matter further we found that the method of taking the sample had much to do with the accuracy of the analysis. At first we drew the blood into a syringe, squirted it into a small bottle, sealed it and sent it to the laboratory. We found that the aeration of the blood during its transfer from the syringe to the bottle materially lessened its CO content, and that if we did not fill the bottle full, the air remaining between the blood and the stopper displaced CO. In all handling of the sample, therefore, we had to avoid exposure to the air, which would seem to be in accord with Doctor Henderson's conclusions.

As to the toxic effect of the gas itself, and relative to chronic CO poisoning, there does not seem to be accurate scientific information. Unless CO has a toxic action we would hardly expect to get chronic poisoning, as the mere lessening of the oxygen content of the blood to a minute extent for brief periods of time would hardly do any damage. The general opinion of physicians to whom I have talked and who come into contact with CO cases is that the gas is toxic and that there is such a thing as chronic CO poisoning, although they think men may acquire a tolerance for the gas. In our own experience I have not been able to separate the effects of exposure to CO from other factors of the occupation that might affect the health.

While engaged in cooperative work with the Bureau of Mines, we studied a group of men who were daily exposed to CO underground and who were often knocked out for brief periods. At no time did we ever find any evidence of CO in their blood, although it was sampled immediately when they came out of the mine. Their general health was impaired, but their work was

very arduous, hot, and dangerous and would sometimes last twenty-four hours or longer on a stretch, so that we cannot ascribe their condition entirely to CO. On the other hand, it is probable that our methods of analyzing the blood were not sufficiently delicate to reveal minute traces of CO. The war prevented this work from being concluded. However, it is not justifiable in the present state of our knowledge to allow men to be steadily exposed to CO, even in minute quantities.

In conclusion, I would like to state that the subject of carbon monoxide poisoning is one which industrial physicians whose patients are exposed to this gas should study carefully in the light of their own experience, and their findings should be reported. Furthermore, whenever men are overcome, or suffer from attacks of dizziness, weakness and prostration, without an adequate reason being at once apparent, the possibility of CO poisoning should be borne in mind.

MUNITIONS BODY LAUDS MEDICAL SERVICE

The *Lancet*, London, England, in its issue of January 18, 1919, discusses with the power of conviction the subject of Industrial Efficiency and Preventive Medicine. After pointing out the national peril of physical unpreparedness, the editorial summarizes the field of industrial medicine as follows:

"We desire to see every employer of labour with the whole or part-time services of a doctor at his disposal to advise him on welfare and health matters; to examine new workers; to watch over the health of his whole staff; to supervise the hygiene of his establishment as regards ventilation, light, temperature, cleanliness, and first-aid appliances; to advise and help the Welfare Department; to be, in fact, an industrial medical officer of health. Such officers should also be retained to advise the local employment exchanges as to the type of worker to be drafted to this or that trade or process. They should also be employed to conduct the periodical examinations of juveniles industrially employed, as will be required under the provisions of the Education Act, 1918, and so to coordinate the school and factory medical supervision. Such local officers would require to be directed and assisted by a medical organization controlled from headquarters—a nervous system of which the local service would be the peripheral end-organs. The value of such a medical organization, associated with the Government Department concerned with employment, would be incalculable not only to carry out investigations and assist research into the effect of industrial conditions and hours of labor, but also to influence the adoption of health reform based on sure knowledge so obtained. Probably in the whole field of preventive medicine nothing more urgently calls for action than the establishment of organized medical supervision of employment on sound lines; probably no field promises in return for cultivation a finer harvest of results. In the past unfavorable conditions of employment, overwork and fatigue have caused irritability and labour unrest, impaired physique and disease.

"The subject of industrial efficiency in relation to health and fatigue is in a large degree one of preventive medicine, a question of physiology and psychology, of sociology and industrial hygiene. . . . Without health there is no energy, without energy there is no output. More important than output is the vigour, strength and vitality of the nation." (From Report of Health of Munition Workers Committee.)

"Thus the final report of the Health of Munition Workers Committee in the sentences we quote summarizes the whole great truth. In the immediate future the nation, as never before, must obtain industrial efficiency through preventive medicine."

INDUSTRIAL MEDICAL AND DENTAL CLINICS IN THE WOMEN'S GARMENT TRADES

BY GEORGE M. PRICE, M. D., DIRECTOR, THE JOINT BOARD OF SANITARY CONTROL, NEW YORK.

THE time is fast approaching when medicine, surgery and dentistry will cease to be strictly individualistic professions. The social and economic progress of the age leads to a higher development of these professions. The socialization of these liberal professions is the next step which is inevitable and should be prepared for by progressive physicians, surgeons, and dentists.

Industrial medicine is a development which, though of recent origin, is bound to be greatly extended in the near future. There is no doubt that within the next decade or so every industrial establishment in the country will have its own physician, surgeon, dentist, and nurse. Just as it is a practice of every industrial establishment to attach to its plant an engineer to take charge of and supervise the technical elements in the factory, so will it appear reasonable and necessary to appoint in every establishment some one to take

charge of and supervise the human element in the workshop. Surely the human element in industry needs as close and as careful supervision as do the inanimate machinery and technical parts of the plant.

Six years ago, while directing the investigations of the New York State Factory Commission, I encountered in all the sixty thousand industrial establishments of the whole Empire State not more than a dozen industrial physicians and surgeons, and these poorly paid and not too competent. Now there are not less than three or four hundred industrial establishments that employ full-time industrial physicians and surgeons. There are, I believe, more than six or seven hundred members in the American Association of Industrial Physicians and Surgeons, and hardly a day passes when there is no addition to their number.



Industrial clinics in New York provide dental laboratories like this, and one or more dentists.

Ordinarily the industrial clinics attached to plants are measures of self-protection on the part of the employer. Especially since the enactment of the workmen's compensation laws has the employer found it to be to his greater advantage to appoint industrial physicians and surgeons for curative as well as for prophylactic purposes. The

women's garment trades of New York City and has been in existence for the last six to eight years.

In 1910, after the general strike in the cloak and skirt industry in New York City, during which sixty thousand workers conducted a bitter strike for ten or more weeks against the organized



The clinics for garment trades workers are managed by employees.

clinic is usually a part of the plant and is financed by the employer. It is also managed by him through the physician or surgeon whom he employs. A number of these clinics have also one or more dentists attached to them, as well as one or more nurses.

With industrial clinics established and financed by employers, it is but natural that the workers themselves are still under some apprehension and misconception in regard to the purposes and value of these clinics. One cannot blame them for fearing the gift that an employer imposes upon them. They look for the motive behind the employer's action. They fear that physical examination as conducted by the employer or his physician is simply a measure to weed out the "undesirable" employee. They know the Greeks and fear their gifts.

Few have been the attempts to create cooperative industrial clinics, clinics established by the workers and for the workers, and managed by them. Hence it may be of some interest to describe in more or less detail an experiment in industrial self-control which has been undertaken by the Joint Board of Sanitary Control in the

Cloak and Skirt Manufacturers' Association, a protocol of peace was signed on September 10, which was partly the work of Supreme Court Justice Hon. Louis D. Brandeis. Among the many provisions of the protocol, there was one which created a Joint Board of Sanitary Control, "said board to be empowered to establish standards of sanitary conditions to which the manufacturers and the unions shall be committed and which both sides obligate themselves to maintain to the best of their ability and to the full extent of their powers." In January, 1913, after another strike in the dress and waist industry, this industry was also taken over by the Joint Board of Sanitary Control, which then had jurisdiction over twenty-seven hundred industrial establishments in the two trades in New York City, in which were employed over seventy-five thousand workers, men and women.

The main work of the Joint Board of Sanitary Control consisted in industrial self-control, in surveying, investigating, and instructing over twenty-seven hundred shops in the two industries; in establishing standards of safety and sanitation, lighting, ventilation, etc., for these shops; and in

enforcing the standards not by police power or compulsion but by education, cooperation, and educational persuasion. The remarkable progress of the work of this board has been noted by many outside the city of New York, commended by the United States Department of Labor, which made several investigations of this institution, and has generally aroused great and intense interest in this new attempt by an industry to take charge of its own sanitary conditions.

Very soon after the establishment of the Joint Board of Sanitary Control, it became apparent that it is a difficult if not impossible task to improve the sanitary conditions of an industry without, at the same time, attempting to improve the conditions of health of the workers themselves. A physical examination of eight hundred workers in 1912 had disclosed a very large number of health defects among these workers, the need of a health campaign among them and the introduction of proper medical supervision. By educational methods and in cooperation with the leaders of the workers' organizations, certain locals, or

offices was then established in conjunction with the office of the board, and a large number of workers voluntarily appeared in the clinics for examination, advice, and treatment. In 1913 the United States Public Health Service cooperated with the Joint Board of Sanitary Control, and during the summer of that year not less than three thousand one hundred workers were given a most thorough physical examination, the results of which appeared later in the *Bulletin of the United States Public Health Service* on "The Health of Government Workers," No. 71.

Since its establishment in 1912, the medical clinic of the Joint Board of Sanitary Control made more than twenty-seven thousand examinations, the exact number on the first of January, 1919, being 27,640. The following is a table of the number of medical examinations made in the clinic during the last six years:

1912	1913	1914	1915	1916	1917	1918	Total
800	1234	4712	5229	7226	3415	5024	27,640

For the last two years the clinic has examined every applicant for membership to the union, the



Applicants for membership in garment trades union awaiting medical examination.

branches, of the union were induced to introduce so-called "medical benefits" to pay to their members during acute diseases certain sums of money for certain periods, also to take care of all those workers in the shops who, after a thorough medical examination, have been found to be suffering from pulmonary tuberculosis. A medical

unions having passed a law not to accept any candidates into their bodies without a preliminary medical examination in the clinic.

Clinics are conducted daily, between the hours of eleven and one, and five and seven. One or two sessions are conducted by a female physician, especially among the Italian women, who ob-

ject to an examination by a male physician. The equipment of the clinic is thorough, the laboratory is well equipped. Suspicious tuberculosis cases are given fluoroscopic examination. Blood pressure tests and urinalyses are made when need for them is indicated.

The clinic also supervises the various sick and invalid benefits which are given by the locals of the union. Thus a person claiming the benefit for an acute disease must pass through an examination, either at the office of the clinic, or at home if he is unable to appear in the clinic. Benefits are paid only after examination by the clinic. The unions also provide sanatorium treatment and cash benefits for all their members who are found to be suffering from pulmonary tuberculosis. These benefits are also supervised and managed by the clinic. During the last year the unions bought a large plot of ground—three hundred acres—and are at present collecting funds for building their own sanatorium for tuberculous workers.

All the work in the clinic is paid for by the labor organizations; the members themselves pay nothing except that those members who are not in good standing are charged a small fee for medical examination and treatment. An important extension of the work of the clinic is the nose, throat, eye and ear clinics, which are on a pay and co-operative basis. In other words, these clinics do not give gratuitous service but charge a nominal rate of \$1 for eye, nose, throat, and ear examinations, by specialists. These special clinics are conducted at special times.

Another important extension of the activities of the clinic is the dental clinic. This clinic is a unique establishment, in the fact that it is probably the first industrial cooperative, self-paying, dental clinic established, conducted, and managed by the workers themselves. The twenty-seven thousand examinations made in the medical clinic have clearly shown that a great many of the workers are suffering from defective teeth, and have likewise shown that a large number of these defects were directly contributory to various diseased conditions among these workers. Furthermore, it has been shown that the ordinary dental work which has been perpetrated upon the poor workers on the east side in New York City not only does not do them any good but does them real harm. Many of their dental defects are simply hidden and obscured by the gold crowns and bridges which are so lucrative to the dentist and so harmful to the patients.

The dental clinic is established to do thoroughly honest work in dentistry at a reasonable cost. The clinic employs a competent medical dentist who is

doing good work and whose purpose is not so much curative as prophylactic. Educational work in prophylaxis is carried on all the time and is the main purpose of the clinic. All work is done in the clinic, which at present employs two full-time and two part-time dentists. During the year 1918, the dental clinic treated 7,465 patients, and has had an income of \$12,576.73. It has practically paid for itself, although it had a slight deficit of \$292. The charges to patients are based upon cost, approximately \$2.50 being charged for an hour's work. Both the medical and dental clinics are very popular among the workers, and have proved successful in every respect.

The main significance of these clinics lies, of course, in the fact that they are conducted, financed, and managed by the workers themselves, for their own benefit.

REHABILITATION OF THE DISABLED

An international conference on rehabilitation of the disabled was held in New York March 18 to 21, 1919, under the auspices of the Red Cross Institute for Crippled and Disabled Men, and the Red Cross Institute for the Blind.

Representatives were present from the French Ministry of War, the Belgian Ministry of War, the Italian Ministry of Pensions, the British Ministry of Pensions, the British Ministry of Labor, the Canadian Department of Soldiers' Civil Reestablishment, the Canadian Department of Military Defense, the Surgeon General of the United States Army, the Federal Board for Vocational Education, the Bureau of War Risk Insurance, and the American Red Cross.

The conference was the most representative one of its kind ever held, and dealt with the multitude of questions raised by the programs of rehabilitation in the allied countries.

The main subjects discussed were: National Organization of Rehabilitation in France, Belgium, Italy, Great Britain and Canada; the American Program of Physical Reconstruction; the American Program of Compensation; the American Program of Vocational Rehabilitation; Functional Restoration; Bedside and Ward Occupations; Red Cross Recreational and Diversional Work in Military Hospitals; Provision of Artificial Limbs and Prostheses; Artificial Limbs and Other Prosthetic Appliances; Medical Service in Relation to Rehabilitation; Encouragement of Men to Undertake Training; and Morale during Training; Vocational Counsel, Industrial Surveys of Employment Applications for the Handicapped; Methods of Training; Educational Work in Military Hospitals; Relation of Pension, Compensation and other allowances to Rehabilitation; Interests of Disabled War Veterans Association; Organized Labor and Employers in Rehabilitation; Education of the Public; Rôle of Social Service; Rehabilitation of the Blind, the Deaf, and the Tuberculous; Rehabilitation of Crippled Children; Land Settlement for Disabled; and Placement of Disabled in Employment.

Chattanooga Maintains Wartime Clinic

The venereal clinic established in Chattanooga by the United States Public Health Service during the war will be continued in operation by the city.

THE PREVENTION OF TUBERCULOSIS IN INDUSTRY

BY D. B. ARMSTRONG, M.D., ASSISTANT SECRETARY, NATIONAL TUBERCULOSIS ASSOCIATION; EXECUTIVE OFFICER,
FRAMINGHAM COMMUNITY HEALTH AND TUBERCULOSIS DEMONSTRATION, FRAMINGHAM, MASS.

IN an article of this kind no attempt can be made to cover in a complete way the problem of tuberculosis prevention in industry. Indeed, many special phases of this problem have already been presented extensively and with thoroughness in the medical literature, from the point of view of statisticians, industrial hygienists, and others.

It is the intention here merely to relate certain phases of the Framingham experience acquired in the development of the program of the Community Health and Tuberculosis Demonstration. The work there has, of course, touched industrial problems and largely involved the industrial age group. From the point of view of the Framingham experience it may be worth while in addition to point out certain devices, largely routine in character, that have been employed in Framingham for the detection and control of tuberculosis in industry. This presentation should be considered in no way exhaustive; rather, it is suggestive only.

Before taking up tuberculosis findings in particular, it may perhaps be wise to present briefly the chief results of the medical examination work in Framingham, in so far as they are related to the industrial age group. As has been fully described in formal Framingham publications (particularly monograph No. 4), an effort has been made to examine a large percentage of the population of this normal civilian community. Up to the present time out of a population of 17,000, between 10,000 and 11,000 have been examined either in special medical examination campaigns, or through the normal workings of the medical machinery provided for infant clinics, pre-school summer camps, public schools, factory groups, etc.

From a statistical point of view the most reliable data have been derived from the special medical examination campaigns. Out of the 4,473 individuals examined thus far 1,716, or 38 per cent, fall in the industrial age of from fifteen to forty-four years. Certain rather interesting contrasts can be made between the industrial age group on the one hand, and the entire group of examinees on the other, equally distributed as the latter group was for age and sex, and for economic, social and geographic factors. These findings are presented in tabulated form, as in Table 1.

TABLE 1—ILLNESS IN INDUSTRIAL AGE GROUP AND ENTIRE GROUP OF EXAMINEES

	Total Examined	Per Cent Ill	Per Cent Examined Seriously Ill	Per Cent of Total Illness Serious
Entire Group ...	4473	77	25	32
15-44 years	1716	71	26	37

From this table, it will be noted that the entire group presented a higher percentage of illness from all causes than the group of ages fifteen to forty-four. The ratio is 77 per cent to 71 per cent. It may be stated in this connection that for the 77 per cent recorded as ill, following a classification of illness according to preventability, 64 per cent were classified as preventable, and 22 per cent as partially preventable, leaving only 14 per cent of all this sickness as strictly non-preventable.

An attempt to divide the illnesses into major serious affections and minor affections, indicated that of the 4,473 examined, 25 per cent were seriously ill. This serious illness constituted 32 per cent of the total amount of illness. For the industrial age 26 per cent of those examined were recorded as suffering from a disease of major importance; these serious affections constituted 37 per cent of the total amount of illness in this age group. It would seem from this that the industrial age is more likely to suffer from the more serious affections.

As economic conditions are directly related to industrial welfare, a distribution of illness according to income groups may also be of interest. This may be indicated as follows on a basis of the annual family income:

\$700 or under.....	77 per cent ill
\$700 to \$1,200	77 per cent ill
\$1,200 to \$1,800	69 per cent ill
\$1,800 and over	65 per cent ill

The distribution of illness according to the main industrial occupations in Framingham is as follows:

Foundry and machine shop.....	70 per cent ill
Paper products	73 per cent ill
Shoe manufacturing.....	78 per cent ill
Woolen industry.....	82 per cent ill

The experience in Framingham has shown, however, that any distribution of illness according to one factor alone without giving full consideration to other possible influences, such as age and sex distribution, race stock, etc., is likely

to be misleading. While the industrial classification of illness just given may be somewhat suggestive, it is, therefore, to be taken, as presented, with considerable reservation as to final judgment.

As to the prevalence of tuberculosis, it may be stated that the findings in Framingham are in no way unique, as regards industry. There is the usual excessive distribution of tuberculosis cases to the industrial age group. Examination work among industrial groups has disclosed an average prevalence of tuberculosis. The whole question of distribution of tuberculosis cases according to age group, with special reference to the industrial period sixteen to forty-five years for the different types of tuberculosis cases as classified in Framingham, may be indicated most concisely in Table 2.

TABLE 2—DISTRIBUTION OF TUBERCULOSIS CASES ACCORDING TO AGE GROUP

Groups of cases during demonstration—	Total all Ages	16-45 Years	Per Cent in Industrial Age
Deaths	29	16	55
Cases lost to other communities..	32	21	65
Cases under treatment in out of town institutions	22	15	68
Cases under treatment at home..	159	94	59

It will be noted that for these several groups the percentage falling in the industrial age ranges from fifty-five to sixty-eight. That is to say, whatever the classification of cases, more than half are found in the industrial age period. This, of course, confirms previous data bearing on the special burden which tuberculosis places upon industry.

In Framingham, of course, an effort has been made to meet this situation. Considerable co-operation has been secured from local industries, and a program developed for the industrial situation as a whole has up to the present time been in part applied. On a basis of this experience it may perhaps be timely to attempt to indicate in a brief, obviously incomplete, and cursory manner the various instruments upon which an industrial community may depend for protection against disease in industry, particularly tuberculosis. The devices and channels of approach to the industrial health problem may in part be indicated as follows:

General Community Hygiene

General sanitary conditions in the community, housing conditions, etc., are reflected in industry through the manner in which these outside environmental conditions affect the individual worker. No program of industrial hygiene can be complete which does not consider the family

welfare of the industrial worker and the hygiene of his general social environment.

Industrial Organization

Employment and Industrial Adjustment.

The modern factory is beginning to recognize the economic as well as the hygienic advantage of a competent employment manager. The work of this individual should be closely related to the medical department. Men at the time of employment should be given consideration as to their physical and mental status, from the point of view of their adaptation to the work to be undertaken. The medical work in the industry, the physical examination and nursing activities, should aim, not at the elimination of the unfit from industry, but, in cooperation with the employment manager, at the adjustment of the less fit to appropriate occupations in the industry. This problem is, of course, coming to the fore in a striking manner at present in conjunction with the work of industrial rehabilitation following demobilization.

Properly managed, there is no economic loss to industry in the adaptation of certain individuals to part-time employment. If cooperation can be secured from industrial managers in this regard, an important channel may be opened for the industrial realignment of arrested cases of tuberculosis fit to work only on a part-time basis at the start.

Medical Organization.—For an industry of twenty-five hundred employees it is believed that an adequate medical staff will consist of one full-time physician, two nurses, and possibly a dentist. There should then be maintained an industrial clinic always open to employees during factory hours. Larger industries will, of course, require a greater personnel, while for smaller plants, it is believed that an arrangement could be worked out whereby medical and nursing service might be sold on a self-supporting basis to the smaller plants on a part-time arrangement, under joint industrial, or perhaps outside responsible health auspices.

This medical and clinic equipment should provide emergency medical care for the industrial workers and should perfect an arrangement whereby cases of a non-emergency, chronic, long-standing character should be referred to an outside private physician of the patients' own choosing for treatment.

An important function of the medical staff should be the routine, thorough medical examination of employees. This should certainly be compulsory for all new employees and may be carried out on a compulsory or voluntary basis for permanent employees.

In communities where the industrial workers are organized, their cooperation and support is essential to the success of medical organization in industry. In certain sections, indeed, the organized workers have taken the initiative in the matter and are themselves employing the medical and nursing staff.

Nursing Organization.—In addition to the work which the nurse must do to assist in the medical activities as outlined above, there may also be cautiously developed through the nursing staff a certain amount of outside work, in the homes of the employees, along social relief, educational, and hygienic lines. Any outside industrial nursing work should always be done in closest cooperation with established community, district, or public health nursing agencies.

Educational Work.—In the industry itself, as well as in the homes of the workers, the greatest emphasis should be placed upon the practice of personal hygiene. Personal hygiene is the keynote of modern sanitation. On the success of the educational movement to promote personal hygiene depends our control of many of the chief causes of unnecessary disease and premature death, such as pneumonia, influenza, and the other respiratory diseases. Emphasis should be placed, at the present time, particularly on the dangers of careless respiratory contact, the dangers of sneezing, coughing, and spitting, the desirability of clean hands before eating, the dangers of common utensils, such as cups, towels, etc. The constructive, health-creative aspect of personal hygiene involving such measures as exercise, rest, fresh air, food, etc., should not be neglected in any educational campaign.

The Sanitation of the Plant.—This should, of course, be under the supervision of the medical staff, in cooperation with the safety engineer, if one is employed. Under this head will come such general matters of sanitation as ventilation, heating, the control of dangerous dusts and fumes, the elimination of dry sweeping during working hours, etc. Many items of equipment in industry bear an important relation to the practice of personal hygiene and to the avoidance of dangers from direct or indirect human contact. In this connection there are the questions of drinking facilities, proper arrangements for eating, toilet and washing facilities, control of spitting, etc.

Obviously, the problem of tuberculosis in industry is a matter, first, of the provision of machinery for the detection of disease; second, the establishment of measures for the control and eradication of tuberculosis and the adjustment of

arrested cases to a fitting occupation; and third, the development of a program of prevention along medical, hygienic, and educational lines. Industry is coming more and more to recognize that it bears an obligation to the man in industry as well as to the machine. Aside from the human values involved, the protection of the producer in industry has always proved to be, even when carried out haltingly and incompletely, a profitable investment of space, funds, and personnel.

Britain Reduces Industrial Diseases

England is achieving a rapid advance in the amelioration and control of industrial diseases in the trades affected by the Factory and Workshop Act, according to facts apparent in the comparative statistics for the month of November and the preceding eleven months, as against the number of cases reported in the year preceding. During the eleven months ended November, 1918, the total number of cases of poisoning and of anthrax reported under the act was 243, compared to 623 in 1917.

Announces Journal of Industrial Hygiene

The *Journal of Industrial Hygiene* will make its appearance in May under the editorship of Dr. David L. Edsall, of Harvard University, and associated editors as follows: W. Irving Clark, M.D., Alice Hamilton, M.D., Yandell Henderson, Ph.D., William N. Howell, Ph.D., M.D., Sc.D., LL.D., J. W. Schereschewsky, M.D., C.-E. A. Winslow, M.S., A. F. Stanley Kent, D. Sc. (Great Britain), Harry E. Mock, M.D., Cecil K. Drinker, M.D., and Katherine R. Drinker, M.D., will act as managing editors. The magazine will be devoted to industrial hygiene and community hygiene in relation to industrial welfare.

The Physician in Industry

With respect to the endeavors of leaders in the war industries of this country and England to prolong and increase the productivity of war workers and tradesmen in industry, the *Journal of the Iowa State Medical Society* calls attention to the results achieved in promoting individual efficiency and predicts that the investigations and recommendations of those engaged in that work will lead to a much wider range of health activities than has in the past been contemplated. It will bring about an adjustment of the professional field of medicine so that industry may derive the benefit of medical science in a fuller measure, while also protecting the physician in his professional status, the Journal asserts.

Army Physicians and Industrial Work

The National Safety Council expects the physicians returning from the war to be prepared especially to enter industrial service. In a recent bulletin it said:

"The Medical Corps of the United States Army has gathered together some of the best men in the medical profession and has given them special training in epidemiology, vital statistics, water supply, sewage disposal, and related branches. The cessation of hostilities leaves no work for these men in the army. Here is an opportunity for industries to secure trained sanitarians for plant work and for community work. If your plant or your community has no competent sanitarian or health officer, write to the American Health Association, 169 Massachusetts avenue, Boston, Mass. That association will send you, without charge, the names and qualifications of men who have left the Army Medical Corps."

LIGHTING CODE FOR WORK PLACES

In a statement published in the *Public Health Reports* for January 24, 1919, the divisional committee on lighting of the advisory committee on labor of the Council of National Defense sets forth a code for lighting factories, mills and work places. The prefatory note states that "when adequate and satisfactory illumination is substituted for the all too prevalent poor illumination in factories, mills and other work places, the results obtained are mutually beneficial to the employees, the employers and the country as a whole. Under proper illumination conditions the health, contentedness, safety, and skill of the employees are maintained at a high standard, the output is increased in quantity and improved in quality, while there is a proportional reduction in the cost of each unit of finished product when it reaches the public."

The requirements for good lighting are summarized under five heads:

1. Sufficient illumination should be provided for each workman, irrespective of his position on the working space.

2. The lamps should be properly selected and so installed as to avoid or minimize strain on the eyes of the workmen. The type and size of lamp should be adapted to the particular ceiling height and class of work in question.

3. The lamps should be operated from sources of supply which will insure continuity of service and steadiness of light.

4. Adequate illumination should be provided from overhead lamps, so that sharp shadows may be prevented as much as possible and in such measure that individual lamps close to the work may be unnecessary except in special cases.

5. In addition to the illumination provided by overhead lamps, individual lamps should be placed close to the work if they are absolutely necessary, and in such cases the lamps should be provided with suitable opaque reflectors.

The code is divided into rules and general information and suggestions. The rules are six in number and are briefly stated in the report:

Rule 1. General Requirement. Working or traversed spaces in buildings or grounds shall be supplied during the time of use with artificial light in accordance with the following rules when natural light is less than the intensities specified in rule 2.

Rule 2. Intensity Required. The desirable illumination to be provided and the minimum to be maintained are given in the following table:

	Foot-candles at the work		
	Ordinary practice	Minimum	Maximum
(a) Roadways and yard thoroughfares	0.05-	0.25	0.02
(b) Storage spaces	50-	1.00	.25
(c) Stairways, passageways, aisles,....	.75-	2.00	.25
(d) Rough manufacturing, such as rough assembling, rough bench work	2.00-	4.00	1.25
(e) Rough manufacturing, involving closer discrimination of detail... .	3.00-	6.00	2.00
(f) Fine manufacturing, such as fine lathe work, pattern and tool making, light-colored textiles.....	4.00-	8.00	3.00
(g) Special cases of fine work, such as watchmaking, engraving, drafting, dark-colored textiles.....	10.00-15.00		5.00
(h) Office work, such as accounting, typewriting, etc.	4.00	8.00	3.00

Rule 3. Shading of Lamps. Lamps shall be suitably shaded to minimize glare.

Note.—Glare, either from lamps or from unduly bright reflecting surfaces, produces eyestrain and increases accident hazard.

Rule 4. Distribution of Light on Work. Lamps shall be so installed in regard to height, spacing, reflectors, or other accessories as to secure a good distribution of light on the work, avoiding objectionable shadows and sharp contrasts of intensity.

Rule 5. Emergency Lighting. Emergency lamps shall be provided in all work-space aisles, stairways, passageways and exits to provide for reliable operation when, through accident or other cause, the regular lighting is extinguished. Such lamps shall be in operation concurrently with the regular lighting and independent thereof.

Rule 6. Switching and Controlling Apparatus. Switching or controlling apparatus shall be so placed that at least pilot or night lights may be turned on at the main points of entrance.

The remainder of the report is taken up with explanations and suggestions which are briefly but clearly stated.

DEVOTES DEPARTMENT TO INDUSTRIAL MEDICINE

Beginning with the issue for January, 1919, the *California State Journal of Medicine* is conducting a Department of Industrial Medicine. The reasons for this department and the functions it will endeavor to subserve are set forth thus in the December issue of the *Journal*:

"Physicians have learned many lessons from their military experience. They have learned discipline and organization. This lesson will be speedily taken to heart in the approaching development of group diagnosis and treatment. The future organization of the profession will be compact and closely related to governmental insurance problems, industrial needs and a better understanding of public health needs. Doctors must organize as they have never organized before, or their economic independence will cease."

"Physicians have learned many lessons in preventive medicine. The enormous impetus to industrial development in the era ahead, together with the large recognition of the responsibility of the public and the employer for the worker and his health, will force the physician to exercise an intelligent interest in industrial medicine.

"It is safe to say that the language of industrial medicine and compensation insurance is today a sealed tongue to the majority of the physicians of California, especially outside the chief cities, and even there exists a serious ignorance of the meaning and importance of industrial medicine. Occupational hazards, sanitation of industries, and hygiene of workers are alike strange. The principles of industrial accident compensation, the part the state now plays and is destined to play, the practical opportunity and duty of the individual doctor are unrecognized. He needs information on the elements of these topics. He needs to be kept informed of significant tendencies in these lines. He needs to keep in touch with industrial welfare work, both city and rural, both in California and elsewhere. He needs information on group organization. He needs must understand the function and opportunity of the physician in this enormous field, ranging from hygienic care and selection of workers, through occupational diseases and hazards, to the professional diagnosis and care of the victims of industry."

"To meet these needs the Department of Industrial Medicine is planned. Contributions, advice, opinions, experience are solicited."

The Texas Public Health Association enlisted 300,000 children in its health crusade in 1918, according to data presented at the association's annual meeting.

Dr. C. D. Selby, of Toledo, O., who helped to organize the new Division of Industrial Hygiene and Medicine of the Department of Labor, has returned to Toledo, but will continue to serve the division as consultant.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C. E. A. WINSLOW, DR. P. H., *Editor*

ORGANIZING MEDICAL SERVICE

IN the early days of the public health campaign there was a sharp line between curative and preventive medicine; and in what was called "preventive medicine" engineering and bacteriological activities predominated over those of a really medical nature. Today, however, the problems which engage the major attention of the public health officials—the campaigns against infant mortality and tuberculosis, and venereal disease, the control of the communicable diseases of childhood, and the reduction of the death rate from the constitutional disorders of adult life—are problems which must be solved not by control of the environment, but by altering the habits of the individual. The engineer and bacteriologist give place to the physiologist and hygienist. Furthermore we are interested not only in teaching the broad principles of personal hygiene as applicable to every one, but in bringing to the individual the knowledge that he needs to enable him to use his particular human machine with its incipient physical defects to a maximum of advantage. Such education implies the diagnosis of the beginnings of disease and means that the gap between the clinician and the public health official must be bridged.

From the standpoint of the physician a rapprochement is equally desirable. Sanitation has achieved notable triumphs, but in spite of the advances in the science of medicine there is as yet little to show in the actual reduction of the disorders which have their origin in the faulty operation of the human machine. The fruits of medical science cannot be garnered until medicine becomes truly "preventive"—until the physician can apply his knowledge at an earlier stage than is possible under the present system of medical service.

The best method of organizing medical service for the prevention as well as the treatment of disease remains to be worked out, and we do not

yet know whether this end will be effected by the development of public and private clinics, by the introduction of systems of health insurance, or in some other way; but the solution of this problem promises to be the central issue in the public health campaign during the next decade. If the columns of MODERN MEDICINE can supply a forum for the discussion of this question it will render a real service, alike to the medical profession and to the public.

EDITOR.

GOOD ROADS AND HEALTH

THERE are fewer physicians in the rural sections of the country than in the cities; there are very few nurses, and practically no hospital facilities in rural regions. In some communities, even in the older states, there is only one physician to 1,500 people and many cases can be found where there is only one physician to 3,000 people, while the average for the cities is generally about one physician to 650 people.

The inadequate supply of physicians in the country is not due to the superior health of the people; there is just as much work needing to be done by the physician in rural as in urban sections. The reason is rather to be found in the lack of means of getting around the country without extreme hardships. It is becoming harder and harder for the young medical graduate to choose a rural location where he must face intolerable traveling conditions for the greater part of the year. After nine years of training for his profession, there is small appeal in the prospect even of a good practice, when the hardships of travel over the country roads are taken into account. Yet hundreds of young medical graduates would by inclination favor a rural practice if it were possible to avoid the unhappy features of country travel. The problem is important to physicians, not only because it is difficult to travel through mud to see their patients, but, also, because it is quite difficult if not im-

possible to transport patients needing special care, or to consult with specialists at a distance or to counsel with other general practitioners.

The results of these conditions have been serious. The death rate of the country districts is only slightly lower than the city and has not improved as rapidly as in the city; the sickness rate is no more favorable; the proportion of young men physically unfit for the army was nearly as great in spite of the boasted physical prowess of the country, and all surveys have proved that a higher percentage of curable defects is found among rural children than among city children.

But there is a worse condition still. The number of deaths of women in childbirth is proportionately greater in the country, and the number of babies who die within the first thirty days after birth is far greater. Forty per cent of all the babies that die in their first year in the cities die within thirty days after birth, while the corresponding figure for the country districts is 47 per cent. No better index of medical care could be given than these facts. They tell the story that nearly every one knows; viz., that adequate medical care is not available for the rural mothers and babies.

Good roads would enable the rural sections to secure nursing and specialists' services which are now practically impossible in many sections. Much of the future development of public health work, visiting nursing and medical service generally in the rural communities depends upon the development of good roads. It is quite impossible to provide such service effectively under present conditions.

There is also looming up the possibility of a rural hospital service with facilities for transportation to, and care in, community hospitals in which the facilities for diagnosis and care would far exceed the meager provisions of the home. The coming of good roads will hasten this development.

The city residents are concerned also in the condition of rural roads from the standpoint of health protection because they are dependent upon good roads for fresh milk. Large cities are furnished milk from remote rural regions. Bad roads delay its delivery. It is not uncommon for milk to be allowed to accumulate for two or three days before delivery from the farm. Bacteria often develop dangerously in the meantime. Good roads will emancipate the cities from depending upon existing clumsy means of transportation.

General Gorgas Heads Yellow Fever Commission

Major General William C. Gorgas, recently retired for age from the office of Surgeon General of the United States Army, has resumed his position as chief of the

Rockefeller Commission on Yellow Fever and will soon sail for Central America to supervise the studies that are being carried on there by the Rockefeller Commission.

Physicians Give Services to Schools

In response to the appeals of women's organizations in Kansas City for some form of medical examinations in the schools, thirty-two public spirited physicians are voluntarily giving their services for this purpose.

Health Officers Study Infectious Diseases

Dr. Charles C. Duryee, of the sanitary division, State Health Department of New York, is conducting a post-graduate course for physicians and health officers in the study of infectious diseases and public health at the Albany Medical College. The department of health and the college are cooperating in the undertaking.

Medical Aid Free to Former Soldiers

Free medical attention is the right of any man accepted for military duty during the war and later discharged for physical disability resulting from injury or disease in line of duty, says a statement issued by the war risk insurance bureau. Treatment will be provided by the bureau of war risk insurance to all men who are 10 per cent disabled and can trace their disability to military or naval service.

Government Experts Study Mental Hygiene

The coordination of work in all government bureaus and state health departments, in so far as the problem of mental hygiene, insanity and mental diseases enters into the efforts of each, will be undertaken by the United States Public Health Service. A brief of the bureau's program for the investigations in this direction is printed in *Public Health Reports*, Vol. 34, No. 7. Measures for the prevention of mental disorders and consideration of occupational causes of mental disorders, the application of the immigration laws, and child hygiene will receive study.

Urges Compulsory Study of Venereal Diseases

Mr. Justice Hodgins, royal commissioner of the Ontario government, recommends that medical students in Ontario be required to pursue a compulsory course of study in venereal diseases. This recommendation is contained in a report submitted by the commissioner, supplementary to the annual government report on venereal diseases. He proposes the creation of a body to be known as the Ontario Social Hygiene Committee, to conduct educational propaganda. He criticizes the limitation on the production and sale of salvarsan which the owners of the patents compel.

Creates Joint Influenza Committee

A Joint Influenza Committee has just been created to study the epidemic and to make comparable, so far as possible, the influenza data gathered by the government departments. The members of this committee, as designated by the Surgeon General of the Army, the Surgeon General of the Navy, the Surgeon General of the Public Health Service, and the Director of the Census, are: Dr. William H. Davis, chairman, and Mr. C. S. Sloane, representing the Bureau of the Census; Dr. Wade H. Frost and Mr. Edgar Sydenstricker, of the Public Health Service; Colonel D. C. Howard, Colonel F. F. Russell and Lieutenant Colonel A. G. Love, United States Army; Lieutenant Commander J. R. Phelps and Surgeon Carroll Fox, United States Navy.

THE NEW PUBLIC HEALTH

BY H. W. HILL, M.D., D.P.H., EXECUTIVE SECRETARY MINNESOTA PUBLIC HEALTH ASSOCIATION, ST. PAUL, MINN.

NEW views of public health principles have been slowly forming for a decade. The fundamental change from the old consists in a shift of attention from the inanimate surroundings of man—his house, his dooryard, his clothes, air, food—to the man himself. Previous generations of public health propagandists had been so intent on the importance to the individual of his health that they quite overlooked the importance to that health of the individual; that is, they overlooked the immense importance in arriving at the climax—health—of those factors involved in the individual, his make-up, his vigor, his alertness, his enterprise, his physical adaptability, his faculty for meeting adverse conditions.

To these previous generations health had come to be something which inanimate surroundings might impose or might deny, irrespective of the individual concerned, who was, in their conception, a mere plaything of environment.

We of the new views realize that, always barring infection, the health of any individual is far more a matter, first, of his congenital physical equipment and, second, of a certain "sweet reasonableness" in his conduct of his own body operations than of surroundings, be the latter "good" or "bad" on the older schedules.

But, alas, infection cannot ever be ignored, so long as our world remains in its present state. Here again the New Public Health differs from the old in turning from inanimate surroundings, air, water, house, soil, etc., as infectious sources, to the animate surroundings—to the individual's biological associates, man, beast, bird, insect. Thanks to Chain, these have been proved for most infections the only breeders of disease and its chief distributors.

The latest most definite change in views the New Public Health has adopted still awaits general recognition. Our recent world outbreak of influenza has called attention to it and forced it with brutal frankness even on those most inertly anchored to the older views; but these are now

THE NEW PUBLIC HEALTH

This, then, means a high regard for heredity in its broadest sense; a profound respect for immunity, be it hereditary or acquired; a deep distrust of contact between immunes and infected associates; and a glad rejection of the "laws of health" as a protection against infection.

These "laws" were as minute as the Talmud's and were just as barren of protection against disease as were the Talmud's against immorality.

The latest most definite change in views the New Public Health has adopted still awaits general recognition.

bull and then by bear. They held that this "resistance" fluctuated—chiefly downwards—with the surroundings, with extraneous conditions, a missed meal, an hour's extra walk, loss of a night's sleep, etc.

Persons physically imperfect, of poor development, below par in any way, were in that view more subject to infection than their more stalwart neighbors. He who did not possess a good physique to begin with, or who, whether possessing a good physique originally or not, failed to observe the "laws of health" regarding diet, sleep, exercise, brushing his teeth, "changing his feet," etc., invited all sorts of diseases, but particularly the respiratory.

Now, if we never learned anything before from any observations on diseases and their respective specific immunities, the influenza epidemic has surely taught us one thing, with its six million deaths in two years (all but equaling the deaths of the Great War in four years!). It has taught us that whatever "resistance" is or does, it does not correspond with the outward signs of good physique and is not affected by surroundings (unless they be beyond all body compensations), nor does it fluctuate with every little incident in daily life. Take merely the broadest facts now known to everyone. In the influenza outbreak, who escaped—the vigorous adult in the prime of life? No—he was the favorite victim! Who, then escaped—anyone? Yes (at least relatively)—the child, the aged and the tuberculous. There is no evading this world-demonstration so widely manifested that almost every survivor, lay or profes-

adrift, have not yet re-anchored. We propose to show them the only place where they can re-anchor safely.

This older view, long fully recognized as futile by a few leaders, regarded each individual as possessing a certain "resistance" to infection, as he might possess certain stocks in the Wall Street market. The value of this "resistance," so they held, varied as wildly as some Wall Street stocks do when raided first by

They held that this "resistance" fluctuated—chiefly downwards—with the surroundings, with extraneous conditions, a missed meal, an hour's extra walk, loss of a night's sleep, etc.

sional, has seen the proof with his own eyes amongst his own friends or relatives—a demonstration by first-hand observation, hitherto reserved to those few physicians who deal with contagion as a business.

We do not know why vigorous middle-age succumbs or why the feeble and the tuberculous escape. But not the most crassly ignorant or prejudiced can fail to see that the relation usually predicated between physique and "resistance" is *not* the explanation; indeed this must be reversed if it could even remotely be forced to fit the only too plainly revealed facts.

The New Public Health, then, means a high regard for heredity in its broadest sense; a profound respect for immunity, be it hereditary or acquired; a deep distrust of contact between non-immunes and infected associates and a glad rejection of the laws of health; *as a protection against infection.*

These "laws" were as minute as the Talmud's and were just as barren of protection *against disease* as were the Talmud's against immorality. The fear of hell was the old argument for morals—the hope of a happy, successful, honored life, the new.

Cleanliness Serves Its Own Purpose

The fear of infection (typhoid, tuberculosis, etc.) has been long the argument for cleanliness and decency in physical life—but the New Public Health now recognizes the benefits of cleanliness, exercise, etc., as quite sufficient in themselves, without adding as their preposterous chief virtue protection from infection, a virtue now shown to be, in practice, nonexistent.

Having said so much with all the emphasis we may, permit another paragraph, this time of appeal against the inevitable, lamentable bore who will, without doubt, say that we throw cleanliness and decency to the winds, because we insist these have not saved our millions from disease and death due to infection. Such clamors will arise. We point all clamorers to the facts—let them explain them. Nor do we wish that our more sober critics should mistake us as condemning in any sense that which is a real bulwark against most infection—the "cleanliness" of the trained surgeon, physician, nurse, brought to technical perfection and conducted in the presence of contagion with alert knowledge and intent minuteness.

The cleanliness and decencies of ordinary life—the bath, the tooth brush, the mouth wash, the change of clothing on occasion, the swept floor and the clean bed sheets, the dusted piano, and the oft-scrubbed garbage pail—it is not such cleanliness and decency, fine as they are in themselves,

that offset infection, yet, alas, popular Public Health has taught it so for decades.

One last appeal—*please* do not quote us as maintaining that there is no such thing as resistance. Resistance exists; it is the most important weapon that we have to meet infection with—and will be, until such time as we succeed in abolishing infection. What the New Public Health maintains is this, that such resistance is not a function of the physique, and does not fluctuate with every little factor of ordinary life. Perhaps it fluctuates, but if so, the factors of that fluctuation are still unknown.

SCHOOLS WANT UNIFORM HEALTH COURSES

At the invitation of Yale University, several eastern universities sent members of their faculties to New Haven recently to confer on the problem of standardization of the curricula and degrees conferred by colleges in the field of public health. A resolution was approved defining degrees for Doctor of Public Health (Dr.P.H.), Doctor of Science in Public Health or Hygiene, Certificate of Public Health, and Bachelor of Science in Public Health or Hygiene. Dr. W. H. Welch represented Johns Hopkins University, Prof. W. T. Sedgwick attended for the Massachusetts Institute of Technology; Dr. M. J. Rosenau, for Harvard; Dr. W. H. Park, for New York University; Dr. H. F. Smith, for the University of Pennsylvania; and Professors S. E. Barney, L. B. Mendel, L. F. Rettger, M. C. Winteritz, and C.-E. A. Winslow, for Yale University.

The text of the resolution adopted is as follows:

1. That the degree of Doctor of Public Health (for which the abbreviation should be Dr.P.H.) for graduates in medicine should normally be awarded after two years of work done under academic direction, of which one year at least should be in residence and that the requirements for the degree should include class work, practical field work, and an essay based on individual study of a particular problem.

2. That the degree of Doctor of Philosophy or Doctor of Science in Public Health or Hygiene should be conferred on students who hold the bachelor's degree from a college or technical school of recognized standing, and have satisfactorily completed not less than three years of graduate study. It is understood that this degree is based on the fundamental sciences associated with hygiene and public health, including a knowledge of physics, chemistry, general biology, anatomy, physiology, physiologic chemistry, pathology, and bacteriology, in addition to the thesis and usual requirements for the Ph.D. or Sc.D. degree.

3. That the Certificate in Public Health should be granted for not less than one academic year of work to those who have received a bachelor's degree from a recognized college or technical school, or have satisfactorily completed two years of work in a recognized medical school, provided they have previously pursued satisfactory courses in physics, chemistry, biology, and bacteriology.

4. That the degree of Bachelor of Science in Public Health or Hygiene should be given for the completion of a four years' course, the last two years of which have been devoted to the fundamental sciences associated with hygiene and public health or hygiene.

5. That the authorities having the appointment of health officials be urged to give preference so far as possible to persons holding degrees in public health or hygiene.

A SMALL PUBLIC HEALTH LABORATORY

BY GEORGE S. LUCKETT, B.A., M.D., FIELD DIRECTOR, COVINGTON COUNTY (ALA.) SANITARY CAMPAIGN,
ANDALUSIA, ALABAMA

IN several Alabama counties the state board of health has established sanitary units which are expected to demonstrate the practical worth of a well organized county health department. A small laboratory, capable of handling all routine examinations usually considered as falling within the scope of public health work, has proved a valuable adjunct to this particular unit.

It may be expected to secure more hearty co-operation of the physicians in the county when its full value to them has been demonstrated. A local laboratory is able to give more prompt reports than is often possible when specimens must be sent to the state health department, while the convenience in getting material to it seems to encourage the use of exact diagnostic methods. Proof of its worth was had at the very outset, when 2,007 diphtheria cultures were incubated and diagnosed within forty-eight days, during an epidemic in Andalusia.

The examinations of water and milk are appreciated by the more intelligent laymen and enlist their interest and cooperation. The added value of having a sanitarian on the ground to inspect conditions surrounding the source need hardly be mentioned.

It was with these considerations in mind that the director of the sanitary campaign in Covington County equipped, and has in operation, a small laboratory for the health department of that county. Nothing original is claimed for it, but this brief description is offered in the hope that it may encourage others to make the same venture and be of help in answering some of the questions that may arise as well as in avoiding some mistakes.

Any community that can afford a health unit should be able to support such a laboratory, while it would serve equally well for a large industrial plant maintaining welfare service, or, with some additions, as a business enterprise in a small city.

Much depends upon the versatility of the person chosen to conduct the work of the laboratory. It is not necessary to employ a full-fledged bacteriologist. Any young man or woman who has had training as a technician with subsequent practical experience in a hospital or general laboratory can handle all of the work that is offered, especially if at times the director can give a little help. In this instance the plan works well and the technician acts as secretary to the director.

The salary should be between \$75.00 and \$100.00 a month, depending upon the amount of training and experience demanded. However, there should be no stinting in this item of salary, as the success of the undertaking depends upon the industry, efficiency and whole-hearted loyalty of the laboratory worker.

Having secured such a person, it is well to take him into full consultation as to plans for equipping and operating his department. His preferences should be given every consideration possible as to types of apparatus and methods of procedure, thereby assuring his interest in his duties and contentment in a community that is often far from home and lacking in the diversions found in larger centers of population.

At the outset there should be considerable limitation to the scope of work undertaken by the small organization. Examination of the sputum for bacilli, of the blood for malarial organisms, of cultures for diphtheria, of the stools for parasites, of the spinal fluid for bacteria and cells, the Widal test and bacteriological studies of water and milk are all that can be undertaken successfully. The Wassermann test is employed so infrequently in the rural community that to maintain facilities for its performance would entail undue expense and it can well be left to the state labo-

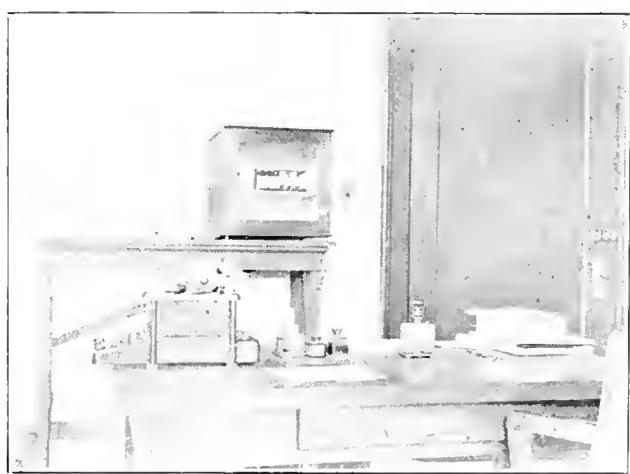


Fig. 1. Sterilizer.

ratory. The latter should also handle the brains of supposedly rabid animals, as some experience is required in such an examination, especially if confidence is to be placed in a negative report.

In addition to the regular lines, it is often desirable to do some clinical work for the local

physicians at a nominal charge. In the present instance a demand was made at once for such service. Without interfering greatly with the proper functions of the laboratory, it is possible to do routine urinalyses, blood counts, gastric analyses, occult blood tests and other simple pro-

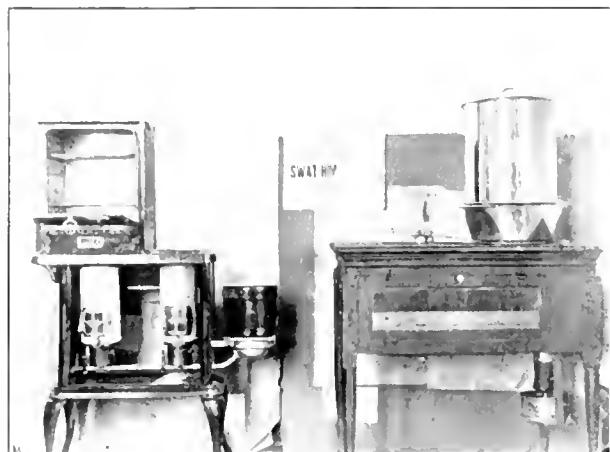


Fig. 2. Portable baking oven with glass door substituted for the usual and more expensive hot air sterilizer.

cedures. The fees from such work are a welcome assistance in paying the running expenses, but are kept low enough to encourage better diagnosis by frequent resort to these aids.

For future reference and as a protection in case of disputes a simple record is kept of the results of each examination. This is easily accomplished by means of a card file arranged by patients' or physicians' names. There is also a tally sheet, on which the various kinds of examinations are noted for statistical purposes. Reports to physicians are made on a printed form which saves time and labor.

In announcing the opening of the laboratory it is well to send out a folder of attractive appearance, giving detailed descriptions for preparing and transmitting specimens. Otherwise, one is likely to have the experience of the writer, who was told by a physician that there was something wrong with the Loeffler's medium furnished, for it was so hard that he "could not push the swab into it at all." This folder should be sent out at frequent intervals, for it is sure to be under an accumulation of last year's journals when the busy doctor happens to need it. Accompanying this announcement and all empty containers furnished is a printed form on which the physician is requested to give necessary data.

Constant publicity will do much toward educating profession and laity alike to a full use of the facilities offered. A brief monthly letter to physicians, dwelling upon a particularly timely examination, is of considerable help. Articles in local

newspapers inform the public of the advantages offered by the laboratory and create a demand which the physician will do well to heed. They also bring calls for water and milk examinations. A little paid advertising along this line is also worth while. If a county laboratory is located in the court house, where it properly belongs, some simple cultures, with appropriate labels, can be kept on exhibition, along with graphic charts on health subjects. In other words, let people know you are there and "on the job."

As to cost, the Covington County laboratory was established at the close of the war, when purchases had to be made wherever obtainable and, often, regardless of cost or distance. With the rapid readjustments in business now in progress the problem will become greatly simplified. Bearing these facts in mind, the following figures will give some idea of maximum cost of original equipment:

Shelving and wiring.....	\$ 42.50
Apparatus and glassware.....	331.75
Media, chemicals, etc.....	36.60
Total	\$410.85

In this total is counted the cost of material and apparatus for clinical work, amounting to about \$30.00.

This equipment includes all that is necessary for preparing the usual culture media, based upon "Standard Methods" of the American Public Health Association. A careful calculation, however, shows that the dehydrated media now on the market in many cases would cost no more than that prepared in the laboratory and would save a little equipment, as well as time. This would



Fig. 3. The work bench and supply shelves.

not hold good for Loeffler's blood serum, if an abattoir were nearby.

Many economies have been practiced, such as storing media and filing cards in cigar boxes and utilizing discarded bottles from the drug stores

for solutions, while an ordinary egg incubator worked quite successfully in lieu of the electrically heated one that has now been installed (Fig. 1). A glass-door, portable baking oven, heated by one burner of an oil stove (Fig. 2) has been substituted for the usual and more expensive hot air sterilizer. An oven thermometer, such as is advertised for domestic purposes, is placed just inside the door and it has been found possible to

maintain any desired temperature indefinitely by proper manipulation of the burner. A further material saving is effected through the payment of light and water bills by the county authorities. While limitless sums can be spent upon conveniences and refinements of laboratory equipment, the amount given here will provide a workshop in which the highest grade of routine, standard work can be quite creditably performed (Fig. 3).

CAPITALIZING HEALTH KNOWLEDGE

BY E. H. LEWINSKI-CORWIN, PH.D., EXECUTIVE SECRETARY PUBLIC HEALTH COMMITTEE NEW YORK ACADEMY OF MEDICINE, NEW YORK.

HUMAN progress has traveled along a double track. In many fields the empiricist unconsciously discovered things by observation and repeated use, and proceeded accordingly, leaving the formulation of the principles to the far-distant theorist who might come after him. In other fields, the philosopher and scientist made discoveries and formulated truths and the practical man applied them to every-day life. With the exception, perhaps, of the realm of politics, the second method is rapidly superseding the first in spite of human inertia. The epoch-making discoveries of the last half century exercise a direct bearing on our mode of life, and individual as well as collective enterprise is making use of them.

Public health administration is one of the beneficiaries of scientific enterprise. Thanks to medical discovery and research, we have made tremendous strides in rendering our life environment more sanitary and wholesome. Age-long habits and prejudices are rapidly giving way before the application of exact science. To a large extent the period of empirical groping in the dark is passing. To be sure, there is a great deal yet to be known and every effort should be and is being made to clear away the mysteries which are still baffling us.

At the same time, we already know a good deal and we are endeavoring to apply this knowledge in raising the standards of public health. Our efforts, however, are only partially successful. The reason for this circumscribed success is our

Under the auspices of the New York Academy of Medicine and the Bureau of Municipal Research of New York City, an experiment has been started in New York to afford an opportunity for those engaged in public health work to come into direct contact with the leaders in the field of preventive medicine.

Rather than appropriate money for a surrey, which often is merely an exposé of the defects, and results in no definite accomplishment, it is to be hoped that communities will send their health administrators to learn the last word in the application of preventive medicine to the problems of administration.

failure to disseminate broadcast the knowledge which we do possess. There are two ways of enforcing the sanitary laws which we adopt. One is by the exercise of police power, and the other is through the enlightenment of the citizenry of the importance of obeying them. We have about reached the limit of achievement by means of the police powers with which we clothe our autocratic boards of health. Because some of the health authorities wield this power unwisely and because the bulk of the people do not fully appreciate the significance of sanitary regulations, the effectiveness of our health laws is only of a limited degree. In order that better progress in health work may be obtained, it seems essential that the scientifically established fundamentals of public health be grouped into the consciousness of the demos. In other words, we must capitalize the knowledge we possess and float it on the people. This is probably the best method by which we may hope to overcome the individual and collective indifference which blocks our efforts directed at combating disease. The ignorance on the subject, even in otherwise intelligent and well-informed persons, is astounding. The general public is still at about the same stage of health enlightenment as were the municipal authorities of one port in the South some time ago, when they required thorough disinfection of a barrel of carbolic acid before it was allowed to be landed from the vessel which had brought it to the port.

Public health education is the keynote to full success in the public health movement. The peo-

ple are naturally interested and absorb information with regard to the etiology of preventable diseases and modes of guarding against them with alacrity if it is presented in an interesting way. The success of campaigns carried on in various communities bears out the statement. The movement is well under way and has received particular stimulus during the war. It may be said that one of the permanent benefits of the war is the demonstration it gave of the large amount of physical unfitness among our young men, and the stimulus it afforded to personal hygiene and public health education. Venereal diseases, which were never before mentioned in the newspapers, are being discussed in the press and even from the pulpit. Some departments of health have gone a step further and do not speak of venereal diseases but speak of syphilis and gonorrhea in publications designed for popular consumption. It is important that this movement, so well started, should not be allowed to slacken. There are signs already in certain communities of a diminution of the public health education activities.

It is only when the city authorities fully appreciate the importance of public health education that the necessary appropriations for that purpose as well as for other public health activities are forthcoming in the proper measure. When a community, through civic interest or municipal appropriation, makes a health survey, it discovers the many ways in which it has been criminally negligent in meeting its sanitary problems. Very often such surveys made by experts result in a rectification of conditions and the voting of proper outlays for the purification of water supply, establishment of modern sewage disposal systems, the introduction of medical examination of school children, babies' milk stations, and what not. In other communities, because of the indifference of the city fathers, or because of the inability of the health officer himself to appreciate his opportunities, the deficiencies brought out by the surveys are left unremedied. The lack of understanding of the possibilities of saving human life and the conservation of vital resources on the part of the community, and the lack of interest or knowledge on the part of the authorities, are responsible for the slight progress made in so many of our rural and urban communities.

The United States Public Health Service has been doing splendid work in arousing the people to an understanding of health hazards and an appreciation of the ways and means of guarding against disease in a personal and collective way. The American Public Health Association, through its annual meetings, offers an opportunity to those engaged in public health work for an exchange of

ideas and views regarding administrative procedures. The several schools of public health connected with our universities are offering splendid courses for those who wish to equip themselves with the necessary impedimenta to carry on the work of public health administration and research. This field will become more attractive to ambitious men and women when, with the rise in public appreciation of the importance of public health, the present meager compensation allowed to health officers will be increased in accordance with its importance.

There is, accordingly, a further field for capitalizing successfully our knowledge with regard to the principles of public health administration. Those who are already in the field and who have had no opportunity of receiving a very thorough grounding in the problems of administration and who, for financial reasons, cannot afford to leave their posts of duty to take long courses in well-recognized seats of learning, are handicapped. In order to meet the needs, in an experimental way the Bureau of Municipal Research of the City of New York has organized, in cooperation with the Public Health Committee of the New York Academy of Medicine, a six weeks' course in public health administration. This course is to consist of three weeks of lecture-conferences and three weeks of field work in cooperation with the New York City Department of health. It is believed that such a course will supply practical health officers with ideas which will suggest themselves when they are placed in intimate contact with a large number of men recognized as leaders in the respective fields of sanitary science and preventive medicine. It is hoped that many communities, instead of appropriating money for surveys, will send their health officers to these conferences in order that they may, by their observations and through contact with a large number of other men, obtain sufficient knowledge of successful administrative devices to warrant the undertaking of changes in their own administrative policy which would be in conformity with those tested out successfully elsewhere.

This training course is to fill the needs of those for whom the short duration of the annual meetings of the American Public Health Association is insufficient, and those who cannot take the long courses of a university school. It is to be midway between the two. If this course proves to be a success, it will probably be initiated by other bodies in various parts of the country and will help greatly toward capitalizing our store of public health knowledge and the established principles of administration which have been worked out through years of experimentation.

THE INFLUENZA EPIDEMIC AT JEFFERSON BARRACKS, MISSOURI

BY LOUIS M. WARFIELD, (MILWAUKEE) MAJOR, M. C., U. S. A., CHIEF OF MEDICAL SERVICE, AND AMAND RAVOLD, (ST. LOUIS) MAJOR, M. C., U. S. A., CHIEF OF LABORATORY SERVICE.

THE epidemic of influenza which swept the country began in this camp on September 28. For four or five days previous to that time we had noticed that there were a few cases which were somewhat different from any cases which had previously come to the hospital, and we suspected that we were then having to do with the beginning of cases in the epidemic. However, it was not until September 28 that the first typical cases were admitted, and from then up to November 12, when the epidemic practically was over, we saw 2,054 cases. Chart 1 (Fig. 1) shows the daily admissions, the number of cases diagnosed as pneumonia, and the number of deaths from pneumonia.

Our personnel on October 4 consisted of 3,935 men. From October 5 to October 10, 5,000 men for limited service came into the post, making in all 8,935 men present in the post during the epidemic. A number of these were taken directly from the trains to the hospital, some of whom died. Chart 2 (Fig. 2) shows the number of men in the various commands who were attacked by the disease.

We were fortunate in having at hand six new pavilion wards which were just about completed and had never been occupied. These were rapidly equipped. Cantonment barracks buildings were later emptied of their men and made into hospital wards, and three of the permanent brick buildings, used by the Eighteenth, Twenty-third and Twenty-seventh Companies, were equipped for hospital purposes (Fig. 3). Each one of these buildings accommodated 120 cases (Fig. 4). The greatest number in the hospital on any one day was 1,241.

The usual precautions against cross infection were at once put into effect, and at first all gatherings among the men at the post were forbidden.

TABLE 1—MORTALITY FROM INFLUENZA AND COMPLICATIONS
This table includes the date of November 12. No deaths since November 5.

Total number of men in camp.....	8935
Total number of cases ill.....	2054
Percentage affected	23%
Cases pneumonia	368
Cases empyema	7
Deaths from pneumonia	120
Mortality of pneumonia.....	32.6%
Mortality among all affected.....	5.8%
Mortality in whole personnel.....	1.3%

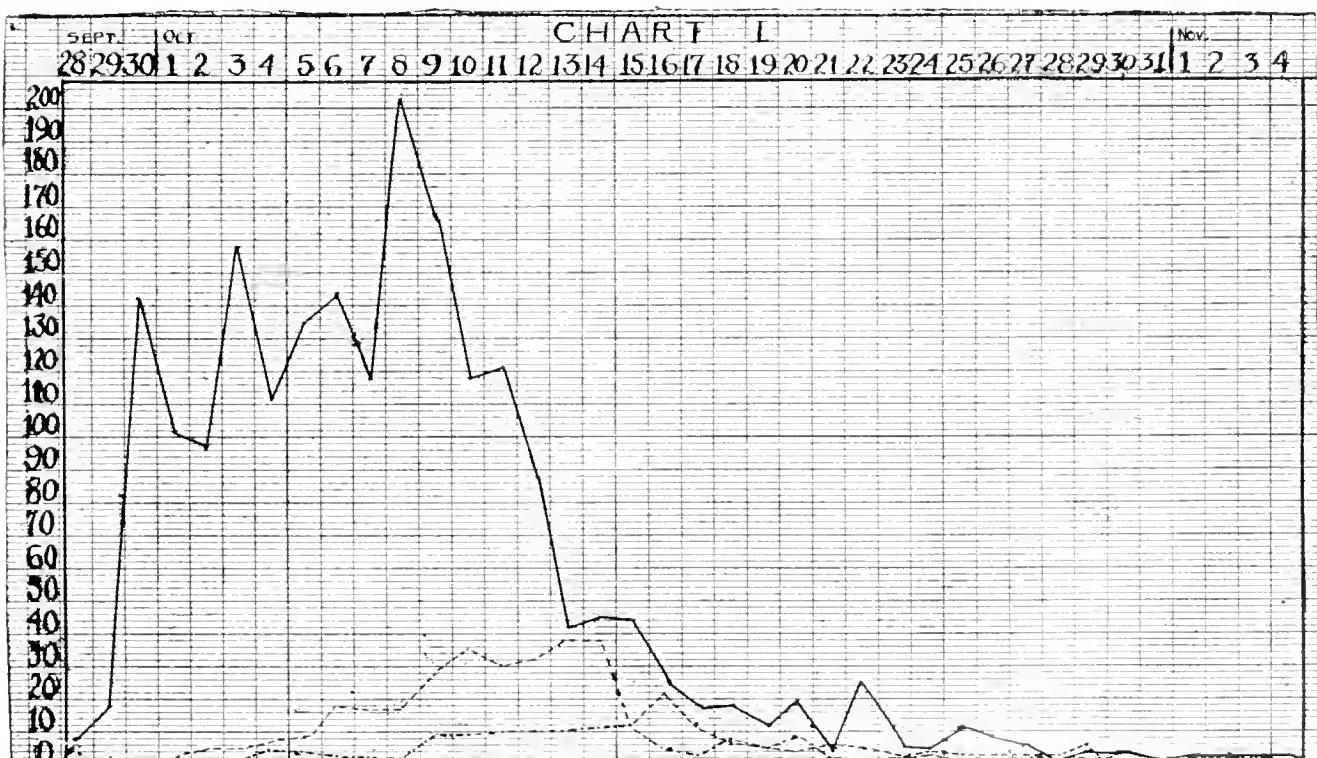


Fig. 1. Chart 1. The influenza epidemic at Jefferson Barracks, Missouri. Continuous line, daily admissions. Upper dotted line, cases of pneumonia reported daily. Lower dotted line, deaths occurring by days. No deaths after November 5.

Within two days, however, this was seen to be unwise; so the Y. M. C. A., K. of C., and post recreation halls were opened again under certain restrictions. The seating capacity was decreased by removing every alternate row of chairs, and the remaining chairs were spaced three feet apart. Guards were stationed so that the buildings were used to that limited seating capacity only. At the same time, all passes for the city of St. Louis were withdrawn, barracks were placed under strict quarantine, and all the men on the post were inspected twice daily by medical officers. By this means we were enabled to pick out, at the earliest moment, the infected, who were sent at once to the hospital. Further, all men in barracks slept in cubicles made by hanging sheets between the beds, and in tents the cots were spaced farther apart than usual. We used certain wards exclusively for influenza, and all men contracting pneumonia were transferred at once to pneumonia wards. We used for these wards our best-equipped pavilion wards with wide porches, and, so far as possible, all pneumonia patients were treated out-of-doors, the weather during the whole period being ideal (Fig. 6).

Clinical Courses of the Disease

The onset and general character of the disease differed in no sense from the cases seen elsewhere and published in recent reports. We had the same experiences as others had in seeing the rapid development of cyanosis and edema of the lungs in some of our fulminant cases. However, we saw no such cases as described by Friedlander *et al.*, of acute fatal edema without bronchopneumonia. In all our severe cases we were able to demonstrate patches of bronchopneumonia. All our deaths were due to pneumonia, some of which were of the lobar type. We fully agree with Christian in his contention that all deaths during this epidemic were due to pneumonia and not to so-called influenza. So far as our cases are concerned, there was not one who died without a diagnosis of pneumonia being made from definite physical signs. We are firmly convinced that the cases in which death is said to have occurred from influenza were those in which either pneumonia was not looked for or hasty examinations failed to detect it. There were a number of cases in which a definite pneumonic patch was discovered in the right or left lower midscapular region and which, within twenty-four hours, had completely disappeared. On the contrary, there were cases starting with a small patch which, by the following day, had developed signs in one whole lung and which rapidly terminated fatally.

The cause of death in almost all our cases, we feel, was due to intense toxemia. It would seem

to us that the heart was not at fault, as it is so often in the ordinary cases or as it was in many cases of pneumonia which occurred last winter and spring, due to the *Streptococcus hemolyticus*. We did have two cases running a prolonged course

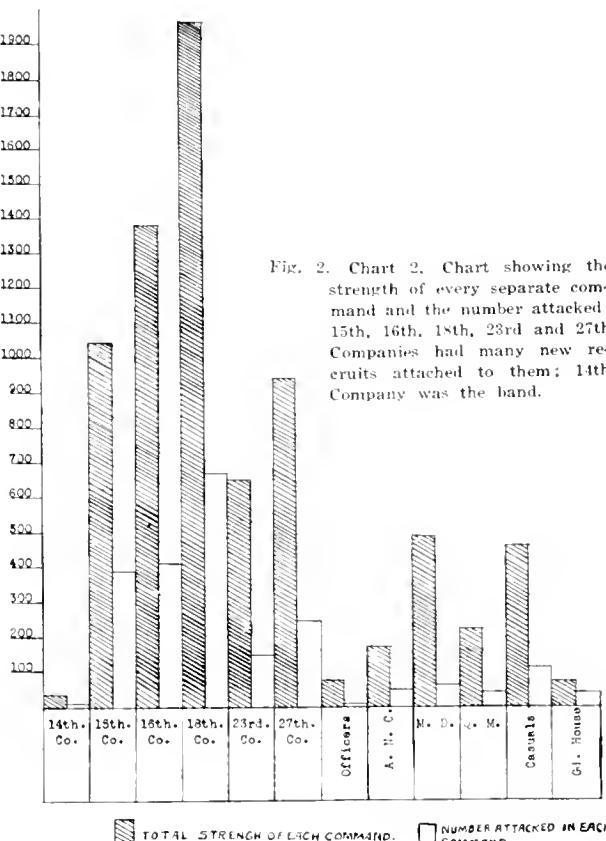


Fig. 2. Chart 2. Chart showing the strength of every separate command and the number attacked; 15th, 16th, 18th, 23rd and 27th Companies had many new recruits attached to them; 14th Company was the band.

in which it appeared that the heart muscles finally gave out. One of these at autopsy showed resolving lobar pneumonia with marked changes in the heart muscle.

Complications

There were numerous complications of a mild type, shown in Table 2. Pleurisy was very common in this epidemic, and the seven cases of empyema occurred towards the last of the epidemic. In three, the *Streptococcus non-hemolyticus* was found; in three, the pneumococcus type undetermined; and in one, a staphylococcus and pneumococcus, type undetermined, were found. The only death among these cases occurred in a man who had influenza followed by bronchopneumonia, and who, when apparently recovering, developed a typical lobar pneumonia with leukocytosis, and sudden, rapid, and painful enlargement of the spleen. This was diagnosed infarcts of the spleen. He developed empyema, was operated upon, and died. A partial autopsy showed an enlarged spleen with several recent infarcts, the largest being 6 cm. in diameter on the surface.

There was a surprisingly small number of ear and sinus complications. The nose and throat department frequently spoke of the cases of myringitis which rapidly receded under treatment or, when punctured, healed in a very short time. It was difficult to determine, in many cases, whether the pneumonia was lobar or lobular in type. We were not able to make leukocyte counts on all the cases, but enough were made to confirm observations made by others that there was no leukocytosis in the lobular type of pneumonia. However, there was the usual leukocytosis when the infecting organism was the pneumococcus and the onset of the disease corresponded more nearly to that of the ordinary pneumococcus pneumonia and the physical signs early showed involvement of a large portion of a lobe.

There were ten patients operated upon for appendicitis. These cases developed symptoms either at the beginning or during the course of influenza. Leukocyte counts showed an increase in the white cells, but in no case was real appendiceal inflammation discovered. Pneumonia developed in seven of these cases, and two patients were desperately ill. All recovered. A separate report will be made on these cases.

One unfortunate accidental death due to *Bacillus aerogenes capsulatus* has already been reported.

Infection of the Hospital Personnel

Four medical officers out of a staff of sixty, including dental officers, and twenty-seven nurses out of a personnel of one hundred and sixty-six became ill. Among the medical officers the disease was of a mild type. Of the twenty-seven nurses, twelve developed pneumonia. Five were desperately ill, but fortunately all recovered. One nurse who became ill toward the end of the epidemic developed empyema. She was operated upon and made a good recovery.

TABLE 2.—COMPLICATIONS DURING EPIDEMIC

Empyema	7
<i>Aerogenes capsulatus</i> infection.....	1
Meningitis, pneumococcus type.....	1
Diphtheria	4
Myringitis	15
Otitis media	9
Rupture, <i>rectus abdominus</i> , bilateral.....	1
Tonsilitis	10
Laryngitis	5
Ulceration, larynx	3
Sinusitis	2
Pericarditis	1
Nephritis	1
Infarction of left lung	1
Facial erysipelas, following influenza and pneumonia	1

Diagnosis

It was not difficult to diagnose the typical cases of influenza with the sudden onset, the curious dull appearance of the eyes, the congested mucous membranes, the aches, pains, and prostration. In general, the initial high fever rapidly declined to normal temperature within forty-eight or seventy-two hours and the cases were on the road to recovery. In others, following the initial drop, there was a sharp rise, with or without a chill or chilly sensations, peculiar cyanosis of the lips with slow pulse, often dicrotic, and no increase in respiration. Examination of many of these cases showed signs of pneumonia. In other cases, no signs of pneumonia were made out. We felt, however, that all of these cases with fever above 102 degrees lasting for four or more days, and those cases with secondary sharp febrile rise following the initial drop, had patches of broncho-



Fig. 3. One of the permanent company buildings used as hospital wards during the epidemic.

pneumonia even though they were not discovered on physical examination. Evidence that is given by x-ray plates leads us to believe that this statement is true. We made plates of a number of cases and were successful in finding small patches of apparent bronchopneumonia where there were no physical signs. In all the plates there were small areas deeply imbedded in the lungs, near the hilus, which were considered to be areas of bronchopneumonia but which gave no signs of their presence on physical examination. Plates made upon recovery of such patients lacked these irregular shadows.

Prognosis

We do not remember to have seen cases of any disease where prognosis was so uncertain and difficult. Within a few hours patients who were seemingly doing well would suddenly develop intense cyanosis and edema, and die; on the contrary, other patients with cyanosis and edema who we thought would surely not recover, did

recover. This seems to be the experience of others.

Treatment

When the epidemic first started we attempted to use a general routine treatment, giving all patients a purge and aspirin in large doses. We



Fig. 4. Type of cantonment barrack which was used as hospital ward during the epidemic.

soon gave that up. As our experience grew, it seemed to us that the most important things were fresh air and constant nursing attention with symptomatic treatment. Each patient had at least one hundred square feet of space, and constant watchfulness on the part of both ward surgeon and nurse was insisted upon. All patients had alkalies, as we felt that these drugs were of value. For the distressing cough we did not hesitate to give opiates, either by mouth or subcutaneously, using codein or morphin. We always combined atropin with morphin. When pneumonia developed we attempted to quiet the cough with morphin, given often enough to produce the desired effect. For the general stimulating effects, strychnin in doses of from 1 20 to 1 15 grain, hypodermically, was given every four hours or oftener, and, for further stimulation, caffeine-sodium-benzoate, hypodermically, in alternating doses was administered. In certain cases, we used camphor, adrenalin, and pituitrin. For the most part, these drugs were used in the desperately ill cases. In several cases of marked abdominal distention we felt that pituitrin was distinctly helpful.

The pneumonia patients so often had acetone breath that we pushed alkalies in all these cases. We also thought we had excellent results from proctoclysis with 5 per cent sodium bicarbonate and 10 per cent dextrose solution administered by the drop method one hour on and one hour off. All cases were given digestible foodstuffs throughout the course of the disease. We did not confine our diets to liquids. We used carbohydrates and fats largely, and limited the amount of pro-

teins. Patients usually received about 2,500 calories daily, some more and some less. It seemed to us that the most important single factor was immediate hospitalization of cases of influenza and absolute quiet in bed. Cases of pneumonia brought into hospital were more severe and more fatal than those developing in the hospital.

Bacteriology

A large number of smears on slides from swabbings of the throat and the nasopharynx were made and stained, according to Gram, with alkaline methylene blue, or dilute carbol-fuchsin. Gram-positive and Gram-negative diplococci and a Gram-negative diplostreptobacillus were the most constant micro-organisms found. In only six cases was the *B. influenzae* definitely identified. We discovered early that the *B. influenzae* does not stain easily and made it a rule to stain all preparations, whether direct or as a counter stain in the Gram method, with dilute carbol-fuchsin never less than fifteen minutes. Haste in staining, we feel confident, was the cause of failure to find the bacillus in the beginning of our work.

Twenty-four blood specimens were collected in sterile sodium citrate solution and plated in blood agar, smeared on blood agar plates or slants in test tubes. The *B. influenzae* was found in six cases, or 25 per cent, either alone or associated with the pneumococcus, *M. catarrhalis*, streptococcus, staphylococcus, or *B. Friedländer*. Blood, a short time after death, was taken from the basilic vein in the axilla in seven cases. *B. influ-*



Fig. 5. Main hospital building with Isolation Hospital in the background. The north wing is not shown. It is similar to the wing shown in the picture. This was used almost exclusively for surgical patients.

enzæ was found once, pneumococcus three times, and *M. catarrhalis* three times.

Autopsies were held and cultures on blood agar plates and slants made from the heart blood, lungs and spleen. *B. influenzae* was found in every case, five times in the heart blood, nine in

lungs, and eight in the spleen. An encapsulated diplococcus growing freely in blood agar with the formation of small green colonies, identified as pneumococcus Type IV, was found in eight cases, *M. catarrhalis* in four cases, streptococcus in two cases, *Staphylococcus aureus* in four cases, and a capsule-forming diplostreptobacillus, probably *B. Friedländer*, in three cases. Neither the *Streptococcus hemolyticus* nor the *viridans* was found in these studies. The greater part of the bacteriological work was done by Lieut. Newman L. S. Walsh, and the results were carefully checked by one of us. Of the autopsies five showed confluent bronchopneumonia of one or both lungs, and five frank lobar pneumonias. In the bronchopneumonia there was little or no exudate into the pleural cavity, and in two there was a small, easily detached fibrinous adhesion between the lower lobe of the right lung posteriorly and the pleura. In other cases the pleura was not involved. The lower lobe right lung was involved in one and the lower lobe left lung in two cases, and in two cases the lower lobes in both lungs were diseased. The affected lobes were of a deep, dark reddish-blue color, spotted with yellowish elevated hobnail-like subpleural patches, with bright, reddish sunken areas between and around them. There were also pearly-looking areas of emphysema scattered about the pleural surface. The lobes were hard, dense, and easily cut, but were not friable. In the acute cases, the incised surfaces were deep, dark red in color, and an abundance of dark, bloody, foamy fluid followed the knife, while in older cases pus exuded from the bronchioles dotting the bloody surface with

minated epithelium and serum. The upper lobes in all the cases were emphysematous, and in two cases emphysema extended deep in the mediastinum and up into the neck. In the lobar pneumonia cases, both lungs were involved in four cases, and the right lung alone in one. There was pleu-



Fig. 7. Interior of a barrack which has been converted into a hospital ward, showing the beds arranged in cubicles. Curtains hang between the beds.

risy with purulent effusions in two cases, and massive fibrinous adhesions between the lungs and pleura. In one of these there were very thick, almost unbreakable adhesions, the remains of a former empyema with rib resection.

The upper lobe right lung in one case was smooth, of a deep slatey color, and hard and solid as a fibroid tumor. Sections through it exposed a dark blue, almost solid, glistening surface with practically no exudate. Microscopic study of sections of all the lungs is not yet completed, but from the evidence before us we believe that in all the lobar pneumonias the disease began as bronchopneumonia, for in cross-sections of the lobes, in some places deep, dark-red, almost black, triangular areas, with the base at the periphery and the apex pointing to a blood-vessel, were found.

The spleen in all cases was enlarged, from three to at least four times normal size. Acute splenic tumor occurred in three cases.

Heart

Right ventricle was found dilated in two cases with marked degeneration of ventricle walls in one case. The muscle was soft, pinkish-red in color, and tore easily. The degeneration was found in other muscle groups, and the rectus abdominis on both sides in one case was ruptured, followed by extravasation of blood into muscles and into the abdominal walls. Endocarditis in two and endocarditis with vegetation on the valves in one case was seen. No pericarditis was found. Liver was enlarged and congested in all cases. Kidneys were very much congested with



Fig. 6. Section of group of pavilion wards with porch enclosed in glass. Screens replace the glass in summer. One of the pneumonia wards used in the epidemic.

gray blotches. Smears and stab cultures were made from the incised surfaces. Microscopic study of the stained sections showed the alveoli crowded tight with red cells, polymorphonuclear leukocytes and serum, walls of the bronchiole congested, filled with polynuclear leukocytes, desqua-

cloudy swelling of the tubules. Mediastinal and bronchial glands were much enlarged and congested, and in two cases suppuration occurred in the bronchial glands, from which the pneumococcus alone was found in plate cultures.

Addenda

After our epidemic had completely subsided we received from Washington University at St. Louis, S.A.T.C., 108 cases of influenza. The epidemic had been present in St. Louis four weeks and was then subsiding. Only a few of these patients were ill, and, except for a very few, they did not have the same characteristics as the cases in the earlier days of the epidemic. Epistaxis, so common in the early days, was infrequent, and the peculiar cyanosis of the lips was found in only three cases, which developed pneumonia. It appeared as if the characteristics had been completely changed, and the last of these cases were more like the cases of what we have known in recent years as la grippe. There were fifteen cases of pneumonia which were diagnosed by physical signs, after very careful examination, in men whose temperatures remained elevated for more than four days. Some of these cases were confirmed by x-ray plates. All recovered.

Summary

At Jefferson Barracks there were 2,054 cases of influenza among 9,200 persons. There were 368 cases of pneumonia and 120 deaths (32.6 per cent). There were seven cases which developed empyema, all occurring towards the end of the epidemic. The clinical and pathological picture varied little, if at all, from cases in other camps, or in civilian life. The mortality for the whole camp was 1.3 per cent. We found the *B. influenzae* (Pfeiffer) in all our cases at autopsy, and in 25 per cent during life. However, we do not feel that it alone was the cause of the disease. There is not enough evidence yet to establish the etiological relationship. In symbiosis with the other organisms it may be virulent enough to produce the symptoms and signs observed.

It seems more probable that the cause is some organism not yet discovered. We can confirm the finding of Hirsch of a diplococcus producing green colonies on blood agar. We feel, as he does, that this organism may have some relationship to the virulent pneumonia.

Red Cross Begins Health Campaign

In the transition from war relief to peace welfare work, the Red Cross will send between thirty and forty nurses into all parts of the United States, as Chautauqua lecturers, beginning June 1. They will try to reach those communities where need is felt for public instruction in

health and hygiene. Following the lecturers will come squads of demonstrators and other Red Cross workers who will conduct health exhibits.

PHYSICAL EXAMINATIONS IN THE DRAFT

The second annual report of the Provost Marshal General recently issued is the most complete index of the nation's vitality that has ever been prepared. It covers the physical examinations of selective service men from February 10 to November 1, 1918, to the number of 3,208,446.

The outstanding facts in this cross section of the nation's population are these:

Number Examined	3,208,446
Number Qualified	2,259,027
Number Disqualified	949,419
Placed in Group "B" (Capable of Development)	88,436
Placed in Group "C" (Capable of Some Service)	339,377
Placed in Group "D" (Capable of No Service)	521,606
Examined by Camp Surgeons.....	2,296,293
Rejected	172,000
Inducted Into Service.....	2,124,293

Reduced to percentages, we find that 25.29 per cent were rejected by local boards, and of those who went to camp 8.1 per cent were rejected by the camp surgeons either before or after induction, thus 35.3 per cent were rejected for military service.

The local boards placed 16.25 per cent in class "D" as totally unfit for any service; 10.58 per cent in class "C" as capable of rendering some service; and 2.78 per cent in class "B" as capable of correction and development. Counting those placed in class "D" by the camp surgeons, we find 21 per cent unfit for any military service whatever.

The causes for rejection:

	GROUP "D"	Total	Per Cent
Causes of Rejection		Rejected	
Heart and Blood-Vessels.....	61,142	13.07	
Bones and Joints.....	57,744	12.35	
Eyes	49,801	10.65	
Respiratory (Tuberculosis)	40,533	8.67	
Developmental Defects	39,166	8.37	
Hernia	28,268	6.04	
Mental Deficiency	24,514	5.24	
Nervous and Mental Disorders.....	23,728	5.07	
Ears	20,405	4.38	
Flat Foot	18,087	3.87	
Teeth	14,793	3.16	
Skin	12,519	2.68	
Thyroid	8,215	1.76	
Respiratory—Non-Tuberculosis	7,823	1.67	
Genito-Urinary (Non-Venereal)	6,309	1.35	
Genito-Urinary (Venereal)	6,235	1.33	
Tuberculosis (Other than Lungs).....	4,136	.88	
Digestive System	2,476	.53	
Alcohol and Drugs.....	2,007	.43	
All Others	14,314	3.06	
Cause Not Given.....	25,419	5.44	
Total all Causes.....	457,694	....

Comparison of certain groups were made of those placed in class "D":

	Per Cent
Urban Regions	21.68
Rural Regions	16.89
Colored	17.32
White	16.08
Alien Communities	17.14
Native Communities	13.64

Figures of those placed in classes "D" and "C" are not given.

Statistics of the examination of men 21 years of age show a larger percentage fit for full duty than of those 21 to 30 years of age; 76.89 per cent of boys 21 years of age were fit for full duty, while only 69.17 per cent of men from 21 to 30 were declared fit for full duty by the local draft boards.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

MEDICINE AND SOCIAL WELFARE

MARKE~~D~~ changes of great significance are taking place in the field of medicine. The idea of individual responsibility for medical care is rapidly changing to one of social concern for the welfare of every unit. The changes are taking place along two lines: The organization of public health measures, broadly conceived, and the reorganization of private medical practice for more complete service. These two lines of development are rapidly converging and are already beginning to touch each other. All indications point to their early coalescence into a broad policy of medical social service.

MODERN MEDICINE is dedicated to the task of considering the coordination and efficiency of these new movements for human welfare through medical and health service. It does not seek primarily to enlarge the scientific data and knowledge of medicine and health, but rather to aid in the important function of putting the existing data and knowledge into action. It looks upon the uses of medicine not merely from the standpoint of individual need, but also from that of the group and of society as a whole. The organization of the machinery of preventive and curative medicine and of public health is the central problem with which this magazine will be concerned.

The field is an extensive and an enlarging one. It includes the organization of all forms of medical practice, the organization and administration of public health service, the scope and purposes of industrial medicine, the restoration and rehabilitation of disabled men, the medical service under workmen's compensation and health insurance, the medical care of the poor and destitute, the health supervision of schools, infant welfare, physical and health education, the training of medical and health workers, and equipment for complete medical and health service.

The Department of CURRENT PROBLEMS IN SOCIAL MEDICINE has for its field the relationship of organized medicine to social welfare and will deal with those new problems and with those new phases of old problems which an awakened social conscience has thrust upon the public attention.

Many of these problems depend upon the medical profession for solution. Social conscience tells us certain things should be done, but medical science must be called upon to tell how they may be done. It is a simple matter to prove that injured workmen should be physically rehabilitated, but medical men must supply the scientific way to do it. When it is called to our attention, malnutrition of children is deeply deplored, but medical science must be called upon to tell how the evil may be corrected.

Just because these problems are so important, and because the physician is such an important element in their solution, there comes the danger to the medical profession and the need for constructive programs. Society is not tolerant when it is unduly aroused—it tries to take short cuts to cure its ills. How to solve these social medical problems, without short cuts, is the question which we now face.

Hygiene, sanitation, health insurance, and a more widespread extension of medical service offer escape from much of the industrial unrest and discontent that unhappily exist in the great commercial centers of the modern world. Given its widest application, modern medical science has within the province of its activity and practice the power to remedy or remove a major portion of the ills that disturb the life of communities.

It is both the opportunity and the responsibility of the medical profession to lend itself to the task of removing the cause of every devitalizing drain upon the energies and health of men and women. This is the function of social medicine.—EDITOR.

BETTER HOUSING—WHAT IT ASKS OF THE PHYSICIAN

By CHARLES C. MAY, ARCHITECT, NEW YORK

IT is many a century since the first medicine-man bethought him to make his tepee somehow distinctive and, in so doing, invoked the aid of architecture in the practice of his art. Beginning therewith to dictate the structural expression of his requirements, his followers have been at it ever since, and with increased insistence as the definition of good practice has become more clear and detailed. One may rightly say that good architecture of today must be the expression of the best thought and practice in the profession which it seeks to serve. This is true in many directions, but eminently in medicine. So much have the doctors had to say to the architect.

Consider for a moment some of these dicta, and reflect whether or not the architect has been quick in his grasp of the desired end, and intelligent in his understanding of the means to attain the translation of it into terms of structure. Hospital construction stands out instantly as the example *par excellence*. The doctors have been learning in their laboratories more and more of the means by which disease is transmitted; they have been able to put their fingers upon one after another of the danger spots, and to call for their elimination. The architects have listened to the word; they have kept full step with the procession. If better methods of asepsis have revolutionized surgery, and improved practice in physical diagnosis has transformed medical service within a hundred years, so, no less truly, has been transformed the architecture which translates knowledge into form. If any doubt exists on the point, it may be speedily dispelled by a study of hospital plans—the earlier with the most modern, the thick, clubby, congested, airless type of building compared with the open, wide spaced sun-lighted and cross-ventilated pavilions, the closely articulated administrative units of the best of the modern plants. Not only are buildings of the latter sort to be found, but they have become stand-

THE ANSWER OF LLOYD-GEORGE

I solemnly warn my fellow-countrymen that you cannot maintain an A-1 empire with a C-3 population. . . . You cannot bring up healthy people in unhealthy homes.

We have had acts into hundreds and hundreds of sections. We have had regulations that would fill a library. We have had the most attractive pictures of model dwellings and endless authorities. But you cannot plough the waste land with forms; you cannot sweep away slums with paper; and you cannot cope with the wants of the people with red tape.

lowed simplicity to become austerity; absence of fussy detail has sometimes meant barrenness; and the hard, easily cleaned wall surface has too often been interpreted in terms of glaring white. So the time came when the thing must be humanized again, a reaction due as much perhaps to the architect as to the doctor, for where the physician speaks in terms of psychotherapy, the architect says, "The glare of that white wall hurts me every time I look at it; and if it hurts me, I'm mighty sure it doesn't do your patients any good." So the trend of architectural expression takes a turn in the direction of warmth and kindliness and the patient is led by his surroundings to feel that not only his bone structure and his alimentary canal, but also his nervous system, and his feelings, are objects of consideration to the medical staff.

Similarly, the architecture of the tuberculosis hospital reflects the trend of modern treatment—perhaps more obviously and directly than in other lines of building. "Give them light and air," says the doctor, and at once there is produced a new type of building in which the proportion of void to solid, the areas of porch, terrace and open, sheltered spaces as compared with the strictly enclosed areas, are quite reversed from old time practice.

Along other lines, too, the association of the doctor with the architect has worked for the good of humanity. Not to elaborate, but merely to name a few of these instances, we may say that factory and industrial architecture of every de-

scription, modern "daylight engineering," all the precautions for the elimination of dust and for cleaning out injurious fumes and acids, the latest tenement house laws aimed against the evils of congestion, and all such devices and restrictions are instances of the intimate collaboration of physician and architect.

Let us admit, for the moment, that they are the outcome of what the doctor has had to say to the architect. At the moment, we believe that the architect wants to say something to the doctor. To be sure it is to ask for more instructions, but the point is that the architect sees the vision and must have the foundation of sound data from the doctor upon which to build.

The medical world has long concerned itself with the cure of disease, the rehabilitation of broken-down organs. It is now passing on, and reaching out to a far finer thing, preventive medicine. Now, if good practice in curative medicine is expressed in the best of our modern hospitals and sanatoriums, what is or will be the architectural scheme of preventive medicine?

We have made beginnings in many directions, some of which we have already touched upon. Architectural study which brings daylight into factories, which finds means to eliminate gases, fumes, dust or acids—is not this a contribution toward the ideals of preventive medicine? So with the modern school and the tenement house—could the stringent restrictions governing those types of building be enforced, were we not convinced that the generations following will make a better showing physically than does our own? We are certain that fine cattle are bred in modern, model, farm buildings—it does not occur to us to look for them in tumble-down, dark, cow sheds. We should be inclined to resentment if it were suggested that we take better care of our cattle than of our children, yet the point is debatable. Are we not justified in saying that one of the directions in which preventive medicine will express itself through the agency of the architect, will be in the greater thought and care which will be devoted to the housing of the great masses of population which thus far are admittedly neglected? In this the housing of industrial workers holds a large part, and it is just here that the architects may invoke the aid of the physicians.

No doctor needs to have the arguments for light and air, for thorough ventilation, for adequate room sizes, and all the rest of it, rehearsed before him. Yet those arguments, when brought to bear upon employers as reasons for entering the industrial housing field, are not sufficient. "Very true," says the factory owner, "but my job is

turning out buttons, not building houses." And until he can be shown that good housing for his employees will enable him to turn out more buttons per day or the same number at a lower cost, he will rarely be interested.

It might help if he could be shown a fair return on his investment, through building good houses and charging moderate rentals. Unfortunately, it is not possible so to appeal to him. The definite financial returns have repeatedly proved too small to appeal to the industrial magnate. Furthermore, the cases where industrial housing programs have been pushed regardless of the financial aspect—where the owners have set out to build, knowing full well that the investment was not economically sound—such cases do not solve our problem; they are, because of the savor of dilettante philanthropy, a detriment rather an aid.

If, then, we cannot appeal for better industrial housing on the ground of direct return, if we do not care to urge it as a philanthropy, where are we to turn for our argument? If the immediate, direct returns are inadequate, how about the slower, indirect returns?

No one who has given thought to the matter questions that there are such returns; that if they are somewhat slower to appear, they are correspondingly more stable; that if they are difficult to appraise, their value is none the less vital. The first of these indirect returns is in the lessened labor turnover in a well-housed community of workers. The exorbitant charges for "hiring and firing" which almost every business has been obliged to shoulder, have become intolerable during the hectic conditions of war production. What was formerly a subject of discussion only within the organization has now become a topic for street corner argument, for dinner-table conversation, and for congressional oratory. Organizations which have been studying the matter for years find many elements affecting for good or evil this load which hangs, a dead, non-productive weight upon their business. But while they emphasize the importance of working conditions in the factory, of the personality of shop foremen, and a half dozen other things, they are agreed that one of the most vital elements is housing—the kind of homes the workers have to live in. Given two factories with identical conditions in all other respects, but one housing its workers well, the other permitting the old style "settlement" to exist—it needs no argument to prove which of the two factories will have the greater charge for labor turnover.

For a long time the writer has been looking for some authoritative figures by which the influence

of housing upon labor turnover could be intelligently traced. For the crux of the matter is right here. Lacking the argument based on direct returns, and being forced to appeal to owners on the ground of indirect returns, it becomes essential that we somehow make tangible the intangible—that we calculate the incalculable, weigh the imponderable. As to labor turnover, detailed investigation has been proceeding for long, with results which approach those we need. The difficulty, of course, lies in segregating the single element of housing from the others. For example, we hear that the Blank Co., with poor housing, has a labor turnover of 20 per cent per month, while the Dash Co., with good housing has only half its neighbor's burden, but here, as in the great majority of such statistics, we cannot point with pride to the figures, and say, "See here what good housing does for labor turnover." For the fact is that until this has been segregated from the other elements affecting the result, the figures are worthless for our purpose. One way to accomplish this separation would be to keep records on labor turnover in some company before and after a housing program had been put through, taking precautions meanwhile to keep all other factors as nearly as possible constant. Results gained in this way over a period of years might be quoted without apology, and with reasonable accuracy.

But if the influence of housing upon so definite and measurable a thing as labor turnover is difficult to figure, what are we to say of the other features which are classed as indirect returns which the employer may reap from improved housing for his workers? With what scales can we weigh the workman's improved reliability, his increased initiative, his more healthy spirit? How measure morale? It is here that ordinary forms of investigation fall utterly short, and at this point we have heretofore found ourselves helpless. But to-day physicians are finding methods for measuring with a large degree of scientific accuracy those things which we have felt could be described but never placed in the scales and weighed. So that presently it may become a commonplace of conversation—not to say roughly, "He is a stupid fellow"—but to say scientifically, "His is a Grade B intelligence," just as we now speak of Grade B porcelain kitchen sink.

Seriously, it would seem that the modern medical profession has here an opportunity to present the whole matter of industrial housing to the employer in a new light. If we can show him that good housing will be a chief factor in raising his labor force from a lower grade intelligence to the one next higher, he will then show interest in

our pleas for properly planned industrial towns with high standard houses for the workers. England has made a beginning along these lines, though principally based thus far on the physical rather than the mental aspects of the case. The following statements from Mr. George Cadbury's book on city planning have grown familiar through wide quotation, but are distinctly apropos:

	Infantile Death Rate per 1,000 Births	Ordinary Death Rate per 1,000 Births
Bourneville	55.0	4.8
Letchworth	50.6	6.1
Hampstead	62.0	9.8
London	101.0	13.6

Persuasive are the statistics, also given, of the effect on boys and girls, in weight and height, of the conditions of a garden town like Bourneville, as compared with Saint Bartholomew's Ward, in Birmingham, only twenty minutes away.

	Age 6 yrs. Weight lbs.	Age 8 yrs. lbs.	Age 10 yrs. lbs.	Age 12 yrs. lbs.
Boys, Bourneville	45.0	52.9	61.6	71.8
Boys, St. Bartholomew's Ward..	39.0	47.8	56.1	63.2
Girls, Bourneville	43.5	50.3	62.1	74.7
Girls, St. Bartholomew's Ward..	39.4	45.6	53.9	65.7

	Heights in.	in.	in.	in.
Boys, Bourneville	44.1	48.3	51.9	54.8
Boys, St. Bartholomew's Ward..	41.9	46.2	49.6	52.3
Girls, Bourneville	44.2	48.6	52.1	56.0
Girls, St. Bartholomew's Ward..	41.7	44.8	48.1	53.1

Take these two groups of boys and girls, one hundred from the city slum, the other hundred from the garden town, and line them up before your industrial magnate. "There you are, sir, from which group will you recruit your shop forces?" Is there a question as to where his choice will light? And as soon as he has made his obvious choice, the argument is given over into our hands. If these youths from the well-housed town are more robust, better developed, keener in intellect than the slum-grown product, then they are worth more to the employer. And if they are worth more, he can be shown his self-interest, his duty to make a contribution from his business account toward producing such a crop of human material.

Some such program of investigation, it seems to me, is the proper line of approach to the employer of labor, who is doing nothing for his employees' home conditions, but who ought to be. Perhaps there are statistics of the sort we have described, now available in this country. If so, they have not been given proper exposure to the light, for many of those most vitally interested have never seen them. If not, then, can we appeal to the medical profession to provide us with the ammunition we architects need for the campaign? The idea is here no more than hinted at; the physician will know how to take hold of it and apply it to good purpose.

THE IMPORTANCE OF CHILD HYGIENE IN NATIONAL RECONSTRUCTION

BY RICHARD M. SMITH, M.D., BOSTON, MASS.

THE war has made it apparent that there must be a readjustment of our national life. No factor is of greater importance in this reconstruction than the proper care and protection of the rising generation. Interest in children has been quickened everywhere by the experiences of the last few years. Public health authorities of the nation and of the states are exerting renewed efforts for the conservation of child life, and private organizations throughout the country are increasing their efforts in the same direction.

A complete conception of child hygiene must include the various stages of a child's development and its varied activities. A child's life may be divided into four periods: (1) prenatal, (2) infancy, (3) pre-school age, and (4) school age.

At the outset the basic importance of economic factors must be considered. Unless efforts are exerted to improve the housing conditions, to increase wages, and to secure healthy parents, much of the energy expended directly on the children will be wasted. These broader and less definite considerations have so direct a bearing on the question that they cannot be neglected.

For the most effective work in child hygiene two forces are necessary—public officials and private agencies. It is imperative that the closest cooperation exist between the two; each must be appreciative of the work being done by the other. Public health authorities of necessity are conservative and carry on their work under limited financial support and in the face of many conflicting interests. Private agencies can do much more extensive and intensive work. They should support loyally all that the public officials are doing well and supplement with their own workers what the public officials cannot do. They must also provide an adequate community backing for the public work and sometimes also inspire the public officials to do that which they have not yet under-

THE NATION'S DUTY TO THE CHILD

This great war was fought, and won, for the sake of the children—the men and women of to-morrow.

It is our duty to the child to assure the best possible physical and economic surroundings, to furnish proper food, to secure protection from disease, and to provide every means for growth and development of a healthy and perfect body.

No factor is of greater importance in this reconstruction than the proper care and protection of the rising generation.

taken. The two forces together must educate the public, and sometimes even the physician, to the full realization of what can be accomplished.

Prenatal Care

The importance of prenatal care, which in reality is maternal care, has been emphasized again by experiences during the war. To improve the health of the children it is necessary to maintain the health

of the mothers. The mother should be provided during her nine months of pregnancy with proper food; her living conditions should be adequate; her personal hygiene should be carefully regulated; and she should be protected from the necessity of working up to the time of confinement or of returning to work soon after. She should have proper medical attention during this period. At the time of confinement she should receive adequate obstetrical and nursing service, and hospital care if necessary. In many communities, especially in the rural sections of the country, proper medical care is hard to obtain, and in these places midwives often are in practice. Whatever one's attitude may be with reference to the desirability of licensing midwives, one must recognize that the midwife exists and that, if she is to be done away with, some substitute must be provided. If the midwife is to be continued as a recognized part of our medical equipment, there must be some means for her proper training and supervision.

Infant Welfare

Interest in infants has been widespread for many years. Despite this interest and despite the reduction of infant mortality in many parts of the country, large numbers of infants die needlessly during their first year of life. A newborn infant has less likelihood of living a year than a man of eighty.

Prenatal and natal conditions cause the great-

est proportion of deaths during the first year. Adequate maternal care during pregnancy and in labor will prevent most of these deaths. Digestive disturbances cause about one-quarter of the infant deaths. Improving the milk supply has contributed greatly in certain communities toward reducing the deaths from this cause, but much more can be done in many parts of the country in this particular. Recent knowledge of metabolism and of intestinal diseases as applied to infants has resulted in better feeding of babies. The most important advance is the renewed and increasing interest in breast feeding. It is now generally recognized that breast feeding is the greatest safeguard for the lives of infants.

In this connection it is important to bear in mind that all our statistics depend for their value upon adequate and accurate birth registration. A baby has a right to be registered at birth. There are reasons for this, aside from the interest in statistics. The recent draft has illustrated one and many others exist.

It is also important to recognize in this connection that the time has come when some action must be taken in regard to illegitimacy. The child born of unmarried parents has a right to a different status in the community from that which he has occupied heretofore. He must not be made to suffer as the result of circumstances for which he was in no way to blame.

The Pre-school Period

Until within the last few years very little attention has been given to the child between the ages of one and five years. It is now recognized that this is an extremely important period of the child's life. The number of deaths during this period is much less than during the first year, roughly, about one-third as many, but many physical defects make their appearance during these years. The recent draft has emphasized the importance of these defects.

The diseases of the respiratory tract and the contagious diseases account for most of the deaths. Progress in the prevention and treatment of respiratory diseases has been extremely slow. The problem is not different from that of adult life, but the deaths from these diseases are more numerous in the period under consideration than in later years. Therefore, the importance of study in this field is correspondingly greater. The contagious diseases occur very frequently and the deaths from diphtheria, despite antitoxin, still comprise the largest single group.

The defects occurring at this time are dependent upon growth. The food changes from milk to a varied diet. It is important that this transi-

tion should be accomplished without digestive disturbances and also that it should be made in proper fashion to provide for the needs of the growing body. As a result of improper feeding anemia and the deformities of rickets appear, and postural changes, particularly round shoulders, prominent abdomen and flat-foot, develop. Enlarged adenoids and carious teeth are so common as to be taken almost as a matter of course, but failure in normal development because of them may result in permanent physical handicap. If proper attention is given to food, posture, teeth and adenoids, most of the deformities of early childhood will be prevented and men of twenty will not be turned down for military service in such large proportion as was the case during the last draft.

Many infants and young children because of the economic condition of their parents are put in day nurseries. Day nurseries are not desirable, but they exist and will continue to exist for many years. Some provision should be made in every state and city for standardizing these nurseries and for providing adequate medical supervision. Children forced to spend their days in these places should not be exposed to disease and should be provided with air, light, and proper food.

The mental development of children is very active during the first five years. Recognition must be made of the fact that the habits established, whether good or bad, are the habits which last through life. Many of these habits affect health. Eating habits and sleeping habits may be cited as illustrations, but many others apparently less intimately connected with bodily development are nevertheless important. These habits must be formed correctly if the child is to be truly healthy.

School Supervision

School nursing has long been embodied in the public educational system. It is well known that 75 per cent of the school children in the United States have some form of physical defect detrimental to health. Most of the defects are remediable. We know that from ten to fifteen million school children have carious teeth and that about one-third as many have varying degrees of malnutrition. The great need at the present time is not a further collection of statistics, but an active campaign to provide means to remedy the defects which are known to exist. We must secure adequate dental care for school children. In many rural communities this will necessitate a traveling dentist, who will go from place to place or school to school, doing all the work that needs to be done in each place and then moving on to the next. We must also do something to cure the malnutrition

already existing and to prevent its developing in the next generation of school children.

The so-called "contagious diseases" cause the greatest number of deaths in this period of life. Further means must be devised to insure the detection of these diseases among school children and to secure their control.

The children themselves should receive definite instruction in personal hygiene and the methods of keeping well.

The Child in Industry

No discussion of child hygiene would be complete without mention of the necessity of interest in the child in industry. The Federal child labor law was unfortunately declared by the Supreme Court to be unconstitutional, but new efforts are being made to secure legislation to pro-

tect children from improper labor. The war has given great temptation for relaxing existing standards, but now that the war is over, there must be no lowering of the bars. The older children, who may work legitimately, must be surrounded by the proper safeguards for health.

The war has removed many of this generation even in this country and many more in other countries. Everywhere there is a deeper realization of the necessity of doing everything possible for the next generation. This great war was fought and won for the sake of the children—the men and women of to-morrow. It is our duty to the child to assure the best possible physical and economic surroundings, to furnish proper food, to secure protection from disease, and to provide every means for growth and development of a healthy and perfect body.

THE BIOLOGICAL SIGNIFICANCE OF PHYSICAL EDUCATION

BY R. TAIT MCKENZIE, M.D., LATE MAJOR, R.A.M.C., DIRECTOR OF PHYSICAL EDUCATION, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA.

FOR the last year, two million of our young men have been under regular physical training of the most strenuous kind, but in the preliminary examination for the draft an additional third had to be rejected for physical defects, many of them due to lack of normal physical development. It is peculiarly appropriate then, at this time to understand how fundamental is that contribution made by exercise to a sound physique.

The growth and development of a child is directed by the play instinct, an automatic system of physical education based on spontaneous exercises of his own devising, and the amount of muscular work done by an infant is quite as great as that done by an active adult, weight for weight. The infant kicks and squirms, waves his arms and legs continually when awake, but almost the only coordinations that are developed at birth are those of sucking and grasping, intimately associated with his survival. The importance of giving free play to all his movements and the danger of preventing them by tight and confining clothing seems self-evident, although it is often neglected. He progresses to the more accurate coordinations of picking up and throwing objects, pulling things apart, building up blocks, and, finally to balancing himself in the upright position, which is man's greatest muscular feat.

Roughly speaking, the first seven years of in-

cessant activity are devoted to testing everything within reach, in this world with which he is surrounded. He makes experiments in the resistance of the walls and steps against which he bumps his head; in the weight of the blocks which he drops on his foot; and in the use of simple tools.

At about seven years, a new ambition shows itself, and he evinces a desire to test himself against his fellows in speed, strength, and agility. He feels the need of a moving target, and so all the games of tag appear, under their various names: hide and seek, prisoner's base, and duck on a rock. In these he gains an entirely new set of experiences, and is able to determine his relative position among his fellows.

It is not until he attains the age of twelve that he begins to recognize that he is only a part of an organized unit, and his games reflect this new knowledge, showing the development of the spirit which subordinates the individual to the group, and although the activities of the first period continue throughout his whole growing life, increasing his mastery over the powers of nature in such exercises as rowing, swimming, climbing, hunting, gardening, and while the personal competition that he learns in the second period is continued in the more formal sports of boxing, wrestling, and fencing, the contribution of the period from twelve years on is almost purely a social one. It

is the "gang instinct" seen in team games like baseball, hockey, basketball, and football. All these sports, worked out to their complicated organization by the children themselves, have their fundamental value in developing the body harmoniously and training the individual in the use of all his physical and mental powers.

As he grows older, the more violent of these games are replaced by others, requiring a closer coordination and more advanced development of the reasoning powers. There is no hygienic reason why a boy of twelve should not take up a game like golf or fencing, but, as a matter of fact, few boys will choose games requiring such *finesse*. The enjoyment and appreciation of them comes with the increased development of the more intellectual faculties, while the more violent tests of endurance and strength become more and more distasteful as age increases. Under natural conditions, these games develop into occupations in which the boy uses his manual skill. The natural occupations like farming, fishing, lumbering, and the various crafts require a sufficient amount of muscular exercise, mostly in the open air, but even they tend to specialize, and in America the proportion of town dwellers has gone up to nearly 60 per cent of the total population. The artificial and confining conditions of industrial and city life must be faced. There is not enough space and air for each individual to develop normally, if he is left to himself.

In our industrial life, machinery is designed wherever possible to reduce muscular activity to a minimum. Even the child is kept for hours in more or less restrained positions in school. Everything tends to suppress muscular activity, or to limit it to a few automatic movements, and artificial remedies must be taken for this artificial condition. Lieutenant Farré, the French aviator, on being asked what impressed him most about the American people, said, "Your sports seem to me the result of the way in which you make machinery do all your manual work." Roof gardens, recreation piers, playgrounds and other breathing spaces are not a luxury, they are a vital necessity. The skilled direction of them to get the greatest possible amount of recreation and exercise for the children has produced a class of teachers whose employment is imperative for our national development. The sending of city children out into summer camps and organizations like the Boy Scouts, which teach woodcraft, and the Playgrounds Association, which provides playgrounds, are not fads, but investments to raise the level of physical manhood and womanhood.

The college man or woman is now fairly well provided for physically in most well-organized

colleges and universities, although there is always a tendency to expend the energies on those who need it least and to avoid the ungrateful and difficult task of applying it to those who need it most and who, in many cases, do not realize this fact. The danger point in most men comes when they have left college and have plunged into active business or professional life. The tendency to under-exercise and over-eat means they use up their physical capital until impending bankruptcy sooner or later brings them into the hands of the physician. Communication by mail and by telephone doubles or triples the amount of business done by most men, but it also exacts an additional toll of nervous expenditure, and there is little wonder that so many men are unable to keep up the pace set for themselves at the beginning of their business career. These are the men and women to whom the correspondence schools of physical culture are most alluring, with their promise of incredible results from the modest expenditure of a few minutes daily, while the secrecy with which they are shrouded and the high price they demand for instruction add not a little to their attractions. Such men would benefit from any exercise vigorous enough to stimulate the circulation and the skin. These tabloid systems are composed usually of simple exercises and, to be of any value to the sedentary worker, they must emphasize the use of the muscles of the trunk and of the arms, which are habitually slighted by the work of most men and women. Lists of such exercises have been compiled and published by such men as Luther Gulick, J. P. Muller, and Walter Camp, sometimes under the ambitious title of "systems," but the best collection I know of is that of William J. Cromie, entitled "Fifteen Minutes Invested Daily for Health."

A quarter of an hour of intense muscular action, involving the great muscle masses of the legs, trunk, and shoulders, stimulates the heart and draws the circulation out into the extremities, and causes profuse perspiration. When followed by a shower and rub down, the feeling of exhilaration is unmistakable, but a word of warning is necessary to those whose constitutions have lost the resilience of youth. They may easily suffer from overstrain.

Some of the more mechanical and unnatural exercises have another disadvantage, which, although less serious to the health, sometimes puzzles the victim. They put the golfer off his drive, and the tennis player off his stroke. Natural games cultivate certain coordinations that work smoothly only after long practice, and these quick systems throw a monkey wrench into the delicate machinery of a smooth and accurate long drive

in golf. At best, they are makeshifts, for nothing will take the place of long hours in the open air, however the time may be occupied, whether in golf, walking, climbing, canoeing, rowing, gardening, or hunting.

No age can be slighted if the national vitality is to be kept up and improved, but the growing

period is, of course, the most important, and the laws that are already in force or are now before the state legislature for making physical education a part of the school curriculum, show that the public consciousness is now aroused, and merit the support of every citizen who has the highest welfare of the American people at heart.

DENTISTRY AND HEALTH CONSERVATION

BY HARVEY J. BURKHART, D.D.S., DIRECTOR ROCHESTER DENTAL DISPENSARY, ROCHESTER, N. Y.

IT is only within a very few years that any considerable number of people have appreciated the value of clean mouths and good teeth. The services of a dentist were sought for the purpose of bringing relief in acute toothache, the repair of broken teeth, or providing artificial substitutes. Not many people have visited a dentist because of an appreciation of the fact that the mouth is a breeding place for many different germs of disease, and therefore should be kept in a hygienic condition. A woeful ignorance exists even today of the far-reaching effect upon the general health of pathological conditions about the mouth. Medical examiners for life insurance companies, industrial establishments, etc., pay particular attention to unusual conditions in every part of the body except the mouth. Small boils and pimples are usually scrutinized with great care to determine if there is any condition which might make the applicant a poor risk. There may be a dozen foci of infection in the mouth, pouring their poisonous germs into the blood stream and the stomach, but little, if any, attention is paid to these.

The lack of recognition of dental lesions is not confined to the laity. The medical profession itself has been slow to realize the importance of proper mouth conditions. There has often been an antagonism between physicians and dentists, and the patient has been made to suffer on account of a lack of reasonable cooperation, but

happily these conditions are fast passing away. Medical men now realize that many cases of chronic diseases, acute diseases and special local diseases come from mouth infection; for example, neuritis, sciatica, acute paralysis, etc. Ulcerated stomach, diseases of the gall-bladder, appendicitis, etc., are often caused by local infections. Cases might be cited of rheumatism, neuritis, arthritis, chronic valvular disease of the heart and many others that have been greatly relieved or cured by proper dental attention.

Bacteria may enter the body in various ways, but the most common portal is the mouth. There are many places about the mouth to harbor germs of infection—carious cavities in the teeth, pyorrhea pockets, abscesses about the roots of the teeth, the tonsils, etc. That disease germs found in the mouth are a prolific source of disturbance in other parts of the body has been conclusively proved by investigations made by Rosenow and other eminent authorities, who have been able to produce, with bacteria cultures from man, similar diseases in animals. Eminent medical practitioners and health authorities are alive to the fact that mouth sanitation offers a prompt and permanent cure for many of the ills of the body.

The x-ray has been of very great value in the diagnosis of many conditions to be found about the mouth and particularly about the roots of the teeth. Medical men have for some time recog-



Rochester (N. Y.) Dental Dispensary. Founded by George Eastman.

nized the fact that many disturbances in remote parts of the body have been caused by infected teeth, and that the removal of the cause has resulted in a speedy restoration to normal health; but correction of dental disturbances has not always been a cure for every other ill. Much harm has come from the insistence by the medical man upon the extraction of all teeth showing a rarefied area in the picture. At the same time considerable damage has been done by dentists in an unreasonable insistence upon saving every tooth. Medical and dental practitioners will in the end accomplish far greater results and will be rendering a much more valuable service to their patients, if, instead of a blind insistence upon their individual opinions, they will cooperate with each other more cordially and decide upon operative procedures only after reading and interpreting the picture in connection with the history of each case, thus avoiding much needless and ruthless extraction of useful and valuable teeth. It goes without saying that any competent dentist will give the patient the benefit of the doubt rather than insist upon the retention of a tooth that is a menace to health. Equally so, the medical man should realize the importance of retaining healthy teeth for the purpose for which they are intended.

There are many well-authenticated cases of a complete restoration to health and normal function of people suffering from insanity and various nervous disorders, in many cases caused by nerve pressure from unerupted and impacted teeth. It is also well known that many cures, particularly in rheumatism and neuritis, are effected by removing sources of infection about the mouth and teeth.

A long step ahead was taken by the Government when provision was made to appoint dentists members of local draft and advisory boards, and in formulating regulations with reference to the teeth. The Government recognizes the value of good teeth and clean mouths, by requiring dental inspection, ordering the correction of various troubles about the mouth, restorations of various kinds, the supplying of artificial substitutes where necessary and the furnishing of tooth brushes.

The making of an army of over 4,000,000 men dentally fit has been a tremendous task, but it has been done. The soldiers have been made comfortable and fit by the removal of impacted teeth, the treatment of abscesses and diseased teeth and gums, the filling of cavities and the removal of various other pathological conditions. While many of these things will be only temporary in character, by far the greatest permanent good will come from the knowledge that has for the

first time been brought to many of them that a clean, comfortable and healthy mouth is essential to good health and promotes greater efficiency. The value of education to secure improved dental conditions in the army does not stop there. When the boys return to their families, they will tell them of the need for paying careful attention to their mouths and teeth, as one of the most important things to be done to maintain good health. The Government has not only provided the machinery to take care of the present emergency, but it has inaugurated an educational campaign that will be far-reaching in its effect in promoting good health.

During this war, not only the Government but various philanthropic organizations have instructed the large majority of the soldiers and sailors in hygiene and sanitation and the value of health conservation, as the same number could not have been taught in any other manner in many years to come. They have been required to keep themselves and everything with which they have had to do in as sanitary a condition as possible, because it is good business so far as the Government is concerned. These lessons will appeal to many of them as being most valuable after the war, and many communities will wake up and find soldier sanitary officers among their citizens. This is the time to inaugurate a general health campaign. This war has strikingly proved the laxity not only of the health laws but of the educational as well by disclosing the thousands who were inducted into the army who could not sign their names. Hand in hand with business reconstruction should go the reconstruction of the health laws to make healthier and better citizens. The campaign to save babies has resulted in much good, and, while there have been great advances by medical men along this line, not so much has been done to prolong adult life. This country is face to face with an industrial situation that will tax the brains of the wisest to bring about a right solution. Europe will no longer furnish the common labor for this country and we will be obliged to furnish our own. The accident and sick loss in this country may be cut in half by improving housing, sanitary, hygiene and food conditions.

In 1916 there were enrolled in the schools of the state of New York 1,962,946 pupils. In the United States there was a total enrollment of 23,209,029. The per capital cost was \$39.37 for the education of each child—a total of \$914,804,171.00. Educational authorities are alive to the value of anything that will improve health conditions, and thereby not only increase the efficiency of the child but also reduce the cost of education, by shortening the time in school. The item for

caring for the backward child and the repeater, due to the loss of time on account of toothache and diseases caused by bad mouth conditions, would represent an enormous sum in money loss for schooling. The loss to parents, who are deprived of the services of older children for these reasons, would also represent a large sum.

The economic phase of this question, the permanent good that may come to future generations by the education of children from early childhood to the value and necessity of proper attention to their teeth and health conservation, were thoughts uppermost in the mind of Mr. George Eastman, of Rochester, N. Y., when he founded and endowed the Rochester Dental Dispensary.

The Rochester Dental Dispensary was erected and equipped by Mr. Eastman, at a cost of approximately \$400,000, and an endowment of \$750,000 has been provided by him. Conditional upon the making of this gift were the requirements that twelve of the leading business men of the city should become interested in the institution, by serving upon the board of management and contributing each \$1,000 a year for five years, and that the City of Rochester should agree to appropriate the sum of \$20,000 a year for five years to pay for the cleaning of the teeth of the children in the schools and orphan asylums. Both of these conditions were at once met. It is to be noted that the appropriation on the part of the city for the prophylactic work did not make the city a partner in the conduct of the affairs of the dispensary. The dispensary is managed absolutely by the board of directors, and at no time in the future will the municipality of the City of Rochester have a voice in its management. Mr. Eastman saw to it that never in the future would any of its activities be changed or interfered with by the various political and other changes that occur in the administration of city affairs. The cleaning of the teeth of the children in the schools is and should be a general charge upon the municipality, and it was an appreciation of the value of this work in the coordination of the various activities of the dispensary that induced Mr. Eastman to require that the city should do its part, before he agreed to establish the dispensary.

The building is located not far from the business center and is convenient of access from all parts of the city by car lines. It is a beautiful, simple structure and contains the most modern dental and hospital equipment that could be obtained. Provision has been made for sixty-three dental operating units, and the hospital is furnished with every facility and convenience for nose and throat work. This institution was not established for the purpose of doing ordinary den-

tal relief and repair work. The fundamental thought was so to coordinate all of its activities that something might be worked out to prove the value of preventive dentistry. I have no hesitation in saying that while much good can be done and great suffering relieved by repair and relief work for adults, the work is of little value in determining what would be the proper methods of



Children's waiting room, Rochester dental dispensary.

treatment for children. An age limit of sixteen years has therefore been established.

It is planned through the education of mothers to have them bring their babies to the dispensary as soon as the first tooth erupts, and by follow-up methods to retain the child as a patient until the age of sixteen, believing that by this scheme opportunities for experimentation and study will be given that could not be obtained in any other way and that will finally result in the standardization of filling materials and methods of procedure that will be of tremendous benefit to coming generations. The retention in good condition of the baby teeth until such time as they are forced out by the second set exerts a most beneficial influence upon the permanent teeth. The child who is educated to care for his teeth until the age of sixteen can be depended upon to do so later and, barring unusual conditions, with a continuance of proper attention to mouth hygiene, will require little subsequent dental attention. The department of orthodontia for straightening crooked teeth is one of the important departments in the dispensary. Not only will the appearance and comfort of the child be greatly improved, but there

will result an improvement in speech by widening the arch, and not infrequently have children below normal mentality been greatly helped by the removal of nerve pressure usually found in a crowded jaw.

The removal of tonsils and adenoids and the operation for cleft palate and harelip will be most important departments of the institution. All of



The dental operating infirmary of the Rochester Dispensary.

these abnormal troubles of childhood will receive the most expert medical and dental attention that is available, and no time, money or thought has been spared to provide a place in which to carry on remedial and research work, which will be not only for the good of the children of Rochester, but for the good of children everywhere.

The dispensary was opened for work on October 15, 1917. The following is a statement of the work during the first year: Tooth treatments, 57,653; root treatments, 24,903; abscess treatments, 11; prophylactic treatments, 23; root fillings, 2,002; silver fillings, 20,168; cement fillings, 7,267; synthetic fillings, 2,776; gutta-percha fillings, 284; nitrate of silver, 654; capped, 198; crowns, 29; inlays, 3; extractions, 7,824; x-ray, 177; orthodontia, 784; number of visits to dispensary, 49,122; number of patients, 6,143; completed cases, 4,409.

The work was done by licensed dentists—recent graduates. While the work done consists principally of fillings and ordinary dental operations, it was done with the thought of preventive dentistry always in mind.

The work of cleaning the teeth of the children in the schools is done by squads of licensed dentists and dental hygienists, the latter being trained in the school for dental hygienists conducted by the dispensary. The squads are provided with a portable equipment consisting of a chair, engine, instruments, sterilizers, etc. All of the prophylactic work—the cleaning of the teeth—is done at the various schools and institutions, under careful and strict supervision.

It will be interesting to know that with the establishment of the school for dental hygienists a new vocation was opened for young women. The

term of instruction is one year. The salaries paid graduates are much larger than those usually received by young women, ranging from \$15 to \$40 per week. It is a field into which could be turned young women who have taken the places of men in war work, but which will be filled by men later on. The purpose of this school is not to educate women to become dental assistants except for the doing of prophylactic work, which the dentist in a full or busy practice finds more or less of a burden. These young women may be used to good advantage as dental assistants for the purpose of doing this work in the public school clinics and in manufacturing and business establishments where welfare work is carried on. They may also be employed to give talks and lectures on oral hygiene and other health subjects.

The dental operators and hygienists from the dispensary made the rounds of the schools in Rochester twice last year. They visited 40 public schools, 27 parochial schools and 8 orphan asylums. The first time the teeth of 33,664 children were cleaned and the second 41,860. After the teeth have been cleaned a survey is made of the mouth, and if other dental work is necessary, or pathological conditions observed, a card is sent to the parents of the child, calling attention to the necessity of at once correcting the trouble. Literature on the value of clean teeth and a clean mouth, printed in English, Italian, Yiddish and Polish is sent to the parents.

The work of the young women who have been doing prophylactic work has been most satisfactory, not only in Rochester but in many private dental offices. The Government has also placed its stamp of approval upon their work by giving employment to a considerable number to aid and supplement the work of the regular army dentist in hospitals in Washington.

A school lecturer is employed by the dispensary, who delivers illustrated lantern-slide lectures on oral hygiene and other health subjects. Lectures were delivered to 72,000 children last year.

From this recital of the activities of the Rochester Dental Dispensary, it will be observed that a considerable educational propaganda is being conducted. This will be necessary in any community on account of the woeful ignorance of the public of the value of dentistry in the conservation of health. From the very beginning of the work, it has met with the most cordial reception and approval. The school and health authorities are most enthusiastic and have rendered every assistance in launching this enterprise. While dental clinics are in operation in various places, nowhere else is there an attempt being made to clean the

teeth of all the children of a municipality twice a year or where any follow-up method has been inaugurated. There has been a noticeable improvement as regards attendance, and many cases could be cited of a considerable reduction in the number of repeaters, because of the correction of dental troubles. There has also been observed a wonderful improvement in discipline. It is easy to be seen that a child who has been awake all or part of the previous night, suffering from tooth-ache, as a result of bad teeth and bad mouth conditions, is not likely to have a sweet disposition in school the next day, nor can that child do its work in a satisfactory manner. Principals and teachers have stated that if this work had accomplished no other result than that of improving the dispositions of the children, it would be well worth the price.

During the influenza epidemic, the mortality among the children of Rochester was much less than that in other cities, and medical and dental men are of the opinion that it is largely due to the health talks and prophylactic treatment which the children received in the schools. The sanitary officer at Camp Wadsworth issued an order requiring that every man in the camp, including the officers, be required to line up in the streets of the camp five times a day and brush their teeth, and the mortality in that camp was less than in any other camp in this country. While credit for this may not be entirely due to the brushing of the teeth, it is the opinion of the medical men in charge of that camp that it was responsible to a considerable extent for the superior health conditions at Spartansburg.

The general hygienic conditions of the school children of Rochester have noticeably improved, and tooth brushes have become fashionable in families where there had been none, or where one was used by the whole family. In many cases the education of the child to appreciate the comfort and benefit of a clean mouth has resulted in an improved condition in other directions.

In starting a movement for the cleaning of the teeth of the children in any community, two matters must be decided: (1) Is it the intention to establish a clinic for performing the various dental operations? (2) Is it the intention to do only the prophylactic work—the cleaning of the teeth of the children?

If a clinic for the general practice of dentistry is established there will at once arise a wide divergence of opinion, and there will probably be much discussion about the advisability of establishing a central dental clinic or having scattered units throughout the city. From my own experience and that of others who have had to do with

the practical management of dental clinics, there is no question but that the central dental clinic is the proper one for a city the size of Rochester. It could be centrally located and easy of access by car lines. The matter of the supervision of the clinic is by far the most important consideration, if the best results are to be obtained. Recent medical or dental graduates are not very different from recent graduates of other schools or colleges. They are for the most part inexperienced and have had little practical clinical experience. They are not yet settled in proper methods of practice and their judgment is not mature enough to leave them to their own devices. Young people, with rare exceptions, are not inclined to be punctual in attendance and little realize the importance and the far-reaching benefits of proper and good service in medical and dental clinics. They should be under the strictest supervision, and this can be given only in a central dental clinic. The scattered units throughout a municipality would make the work of the chief administrative officer a most difficult one, because he would not be able to find sufficient time properly to supervise the work. It would, of course, be an ideal arrangement if a man of means or a municipality could be found liberal enough to provide sufficient funds to establish individual units and pay for the services of a proper supervisor for each, but this, I am



Operating unit, Rochester Dental Dispensary.

sure, would be found impossible in cities the size of Rochester. In the two cities—Boston and Rochester—which have central dental clinics, at various times there has been much discussion between medical and dental men with reference to central dental clinics or scattered units. Those who have advocated the central dental clinic idea, and who have had elastic and reasonable minds,

have been readily convinced, after an investigation and an observation of the work in a central dental clinic, that it is the most reasonable and sensible arrangement for cities of moderate size.

When there is a proper organization under central control, the argument in favor of a central clinic does not apply to the doing of prophylactic work in the schools, for the reason that only one kind of work is done. The work of the squads can be easily checked up to see whether it has been properly done. They are also under the supervision to some extent, and the observation all the time, of the principals and teachers, and can be required to account for their working time the same as other school employees. The expense and loss of time in bringing children to a central clinic for prophylactic work only, would be considerable and probably prohibitive in many communities. The arrangement which has been carried on in the schools of Rochester during the last year, has proved to be very satisfactory. Accurate account is kept of all receipts and disbursements for the school work, and surveys of the mouths of the children, with records of prophylactic work, are kept in each school building. When a child is transferred from one school to another the records go with him. This is done for the purpose of being able to make a comparison of the benefits of the dental work of whatever period may be decided upon.

The municipal authorities, and the people of Rochester generally, strongly support this work. No obstacles have been placed in our path by the municipal authorities, and we have not been hampered by interference or requests for the appointment of individuals to the various positions. The board of education, the health department, physicians and dentists have cooperated to the very fullest extent, and much of the credit for this work is due to their sympathy and support. The records of the work done are open to the public at any time, and it is always a pleasure to give all the information possible to those who come from other cities. It will be our greatest pleasure to assist in forwarding this work in other communities.

The education of the public to an appreciation of the tremendous advantages that come from a clean mouth and good teeth, should be one of the important functions of organizations. Any movement that has for its object the improvement of the physical condition of man, naturally increases the efficiency of the individual and tends to prolong life. There is absolutely no question but that proper attention to the mouth and teeth will do these things.

It is surprising to learn that not more than 10

per cent of the inhabitants of this country regularly employ a dentist, or appreciate the value of dental service. In the development of a health campaign due consideration should be given to the available number of physicians and dentists. There are not to-day dentists enough properly to look after the teeth of a sixth of the population of this country. In educating people to appreciate this service, it will also be necessary to increase professional educational facilities, and make the work attractive enough to induce young people to take up professional work.

MEDICAL SERVICE UNDER COMPENSATION ACTS

Dr. Royal Meeker, United States Commissioner of Labor, in an address on the subject "Lacks in Workmen's Compensation," at the annual meeting of the American Association for Labor Legislation at Richmond, Va., December 28, 1918, said:

"The provision for adequate medical, surgical, and hospital treatment for injured workers is far more important than the allowance of money benefits. Yet four states make no provision whatever for such services. Twelve limit the cost to \$100 or less and sixteen limit the period to thirty days or less. Pennsylvania, which probably contributes more fatalities and seriously disabled injuries than any other state, generously allows a maximum of two weeks' medical attention if it doesn't cost more than \$25. Only four states permit of adequate medical and surgical treatment by placing no limits in their laws upon the time or cost of such services. Massachusetts, perhaps deserves to be included with the four states because, although the law limits such services to two weeks, except in special cases, the Massachusetts Industrial Accident Board makes a special case of every serious injury. Washington has no limitation either as to time or amount, but requires the injured workman to pay one-half the cost, which operates as a decided check on proper treatment. The fact that the law puts no limitation on medical services does not mean that all workmen receive all needed medical and surgical treatment of the very best quality.

We should surely devote a large proportion of our time, energy, and intelligence to teaching the great truth that it is better and cheaper to pay competent doctors and surgeons to save lives, limbs, and bodily functions than to pay compensation therefor. The plant manager, the company doctor, the insurance companies, and the public are still living in the early Middle Ages, so far as the correct view of the medical question is concerned. Alas, few of the compensation commissions are much more enlightened. The workman who suffers injury must be restored physically, mentally, and morally as quickly and as completely as possible. When he has been as completely rehabilitated as possible, he should be put back into industry. This may and generally will involve his retraining either for his old job or a new job better adapted to his particular disability. The industrial accident boards and commissions must have a voice in this work of restoration, retraining, and reemployment of injured workers. The Smith-Bankhead bill now before Congress provides for Federal aid on a fifty-fifty basis to the States which will undertake the rehabilitation and reemployment of industrial cripples.

THE MONTH IN MEDICINE

Survey of Current Medical Literature with Editorial Comment

WALTER W. HAMBURGER, M. D., Editor

STAPHYLOCOCCUS AUREUS PNEUMONIA

Our conceptions of respiratory disease have undergone very widespread change, largely as a result of experience in these conditions during the war. Particularly our conception of the pneumonias has been very materially broadened to include the great variety of inflammatory conditions of the lungs due to a variety of different agents. This family of the pneumonias has recently received an addition through the contribution of Chickering and Park¹ under the caption *Staphylococcus aureus* pneumonia. They report from Camp Jackson (Columbia, S. C.) a series of 153 cases from among 8,100 influenza patients admitted to the medical service in which the clinical picture was entirely different from the usual influenza pneumonias.

"These patients were extremely prostrated almost from the onset of their infection. After being ill from three to four days with influenza, their condition became critical. They exhibited an unusual type of cyanosis. The cherry-red, indigo-blue color was indeed very striking, though not pathognomonic of the infection to be described more fully, that associated with *Staphylococcus aureus*."

The most striking clinical features are described as a picture of a general septicemia, with a high temperature, 104° to 106°, a relatively slow pulse, and with an atypical pneumonitis. The disease usually pursues a rapid course, from one to ten days. The sputum is quite characteristic, being of a "friable, purulent material of a dirty salmon-pink color resembling anchovy sauce or the contents of an over-ripe furuncle." Gram stains of such sputa show field after field of Gram-positive group cocci and pus cells, which appearance is said to be of grave or fatal prognostic import.

Staphylococcus aureus has been found in the blood stream at the Hospital of the Rockefeller

Institute in 53 per cent of the cases. It may also be found in the pleural fluid.

X-ray examination of the lungs in these staphylococcal pneumonias shows a diffuse mottling of the entire chest, rarely a typical lobar consolidation.

Pathologically, one finds in the lungs multiple minute abscesses and petechiae just beneath the pleura, while the cut surface of the lung may be intensely hemorrhagic or have the appearance of a confluent bronchopneumonia. The abscesses may be distributed throughout the entire lung and of variable size with *Staphylococcus aureus* being recovered in pure culture from them.

Treatment, as in the other pneumonias of the army camps, has been extremely disappointing, such things as digitalis, camphor in oil, infusions of sodium chlorid, glucose and various other measures being ineffectual.

The outlook, therefore, is extremely bad, and this organism is found in a very high percentage of the fatal cases.

Comment.—While Chickering and Park consider the cherry-red, indigo-blue cyanosis, fulminating course, the lack of definite signs of consolidation of the lungs, the dirty salmon-pink purulent sputum and the leukopenia striking features of this disease, it should be said that these features are found in many of the other severe respiratory infections due to other organisms. For example, a practically identical clinical picture was noted in the severe measles pneumonias associated with hemolytic streptococcus and also in the fulminant influenzal bronchopneumonias in which a variety of organisms, with or without the staphylococcus, was present.

While one would not wish to take issue with Chickering and Park, one feels that the cyanosis, the hemorrhagic sputum, the leukopenia, and the severity of the disease are probably to be considered as evidence of a severe overwhelming toxemias (possibly sepsis), which may be due to any one or more of a group of highly virulent organisms.

¹ Chickering, H. T., M.D., and Park, James J., Jr., M.D., Camp Jackson, Columbia, S. C., Jour. Am. Med. Assn., 1919, Ixxii, No. 9.

Nevertheless, the authors have called attention to what may prove to be a new clinical entity among the pneumonias, and of which one desires to hear more details. The recognition of this type of pneumonitis, as in most of the recent contributions from the army camps, necessitates the close cooperation of clinician and laboratory worker.

ANTITUBERCULOSIS MEASURES

Anyone who can shed new light on an old subject and present it from a fresh viewpoint is entitled to much consideration. Krause² has done this in the March number of the *Bulletin of the Johns Hopkins Hospital*. Although tuberculosis, like the poor, will probably always be with us, his address, "Some Aspects of the Problem," breathes such a spirit of optimism and confidence that all interested in pulmonary tuberculosis, professionally or personally, will derive new courage and inspiration.

Krause emphasizes the fact that the behavior of the human being is of more importance than the activity of the tubercle bacillus itself; that efforts should be directed to the supplementary reeducation of physician and laymen alike; and that "tuberculosis may have its birth in any and every event that makes man unhealthy."

"I would have them told that to be spat upon or coughed upon by the man with the 'common cold' did not upset me because I might merely acquire a cold, quite so much as that this cold might fan my quiescent pulmonary tubercle into phthisis. I would have them told that the delicate woman who was about to fulfill her grandest function should be handled just a little differently from the sturdy one,—that her labor should be shortened, that her lactation be directed with the possibility of manifest tuberculosis ever kept in mind. I would have them told that over-strain, whether physical or mental, or that dissipation was to be avoided, not because it lay them open to infection, but because it supplied the oil to a wick that was already present."

Krause emphasizes anew the universality of tuberculous infection from early infancy or childhood, as revealed by the Pirquet test, and that although we all have it, few of us are sick; that "before adolescence tubercle is more common than hair on the face, and after forty, more common than hair on the head; and in a great proportion of instances not so troublesome," unless the patient makes it so.

His reference to tuberculosis statistics showing that "tuberculosis mortality rate began to decline in practically every country that was advancing

industrially and was therefore increasing in wealth, as early as 1850"; that tuberculosis therefore declined before Koch's discovery of the bacillus, and before any modern scientific means of combating the disease had been instituted," is of striking interest and deserving of wide recognition and comment.

Such facts are surely of great encouragement, and, as Krause points out, are undoubtedly related to the "gradual bettering of the conditions of labor and living of the mass of the people."

A third item of interest, and really the only pessimistic note in his discussion, is his analysis of the spread of tuberculosis in early undetected cases. He points out the danger of the man, woman or child with a positive sputum, working and living in communal relations with his fellows, not knowing that he is ill, not consulting a physician for months or perhaps years, and the probable widespread dissemination of disease during this period. He comments on the difficulties in making an early positive diagnosis in the hands of skilled men even when a physician is consulted, and of even greater difficulty in the hands of the unskilled. He speaks of a prominent pediatrician who "presents himself to the pthysiologist for the first time twelve years after his cough had begun, and arrives with both lungs 'riddled' and sputum loaded with bacilli; of an eminent judge who first asked for advice thirty-five years after his disease had given out its first warnings, who came with cavitation in both lungs and a sputum count that would have caused Gaffky to create a new classification; of the pathologist who for eight years had the symptoms that we classify under the cardio-gastric type of onset and who finally went on to bilateral disease; yet although under constant observation by the best men, he was not declared tuberculous until bacilli appeared in his sputum after nine years."

Comment.—The therapeutic lesson from all this is clear. All of us should keep constantly in mind and should insist on the avoidance of mental and physical strain, over-fatigue, worry, unsanitary living, insufficient diet in those predisposed or frail individuals in whom the likelihood of a flaring up of their healed or latent tuberculosis is present. The war, with its deprivations of all bodily comforts, with its protracted worry and anxiety, with its superhuman effort and speeding up of all human endeavor and activity, undoubtedly ignited many latent fires. Now that it is over, and the period of reconstruction is here, physical and mental reconstruction should be and will be given extended thought and consideration. With the betterment of industrial and labor conditions, with the higher wage for the laboring

² Allen K. Krause, *Bulletin of the Johns Hopkins Hospital*, 1919, xxx, No. 337, p. 337.

classes, with better food, shorter hours, more leisure, all this will tend to lower the percentage of developed cases of tuberculosis. Constant instruction and education of the community regarding the advisability of patients presenting themselves to their physician early and continuously when a persistent cough, loss in weight, afternoon temperature, a general feeling of run-down and malaise will help to detect the early cases and diminish the danger of spread.

TACHYCARDIA AND MITRAL DISEASE

Treitschke held that war is the saving grace and redeemer of nations. While most of us may disagree, one cannot but feel that the present war has, if nothing else, done two things for this country.

First, it has acted as an energizer of many branches of activity; social, communal, industrial, scientific (medical).

Second, it has ruthlessly revealed our national deficiencies, silhouetting them against the heavens so that all may see. Furthermore, in most instances the war has probably done both of these things simultaneously.

In this connection the science of cardiology has likewise been given new impetus.

In the study of the tachycardias much excellent literature has appeared. For example, Benjamin and Brooks,³ in their examination of soldiers, describe a test which they feel has been of much aid in the differential diagnosis of the tachycardias; these they divide into the simple and persistent. The simple, or nervous tachycardias (neurotachycardia) occur in patients with irregularities in breathing, who are "fidgety," have coarse, irregular tremors, often confined to one hand or the other, stopping during conversation, in whom there is frequently some hesitancy in speech. The individual is simply excited. In nearly all such cases, placing the patient in the dorsal posture causes an early or delayed diminution of the pulse rate.

The persistent tachycardias are described as occurring in patients who are usually not excited, in whom there is a poor response to exercise, with a somewhat anxious look, with inordinate sweating, with a history of poor sustaining powers in games dating from some infection, such as rheumatism, grip, pertussis or measles; with various types of sensations in the region of the precordium at irregular times (described as a burning, actual pain, or a feeling of fullness or heaviness); with palpitation or a consciousness of rapid heart rate (especially in recumbent posture); with spots appearing before the eyes, and giddiness but seldom actual fainting; headache,

As a means of analysis of these cases of rapid heart, Benjamin and Brooks³ describe the following procedure as being of aid in differentiating this neurotachycardia from the persistent tachycardia (neurocirculatory asthenia). "The individual, on direction, drops the head and bends forward to about an angle of 45 degrees, whereupon the rapid heart will retard to a remarkable degree very quickly, sometimes to half of the original rate, if the case is one of simple tachycardia. The other type is not affected at all. The rate in a bending position corresponds fairly accurately to the rate in a recumbent posture. The test has been applied in a very large number of cases so far with very gratifying results. A certain number of soldiers who have responded to this test have been followed up. They are doing full duty. This adjunct, in the disposition of a rather difficult group of cases, is recommended for further use and comment by members of the service and the profession.

Mitral disease has likewise been the recipient of much new observation and study. Morison⁴ discusses the value of amyl nitrite inhalations in the diagnosis of mitral stenosis. The effect of amyl nitrite on the heart is very similar to the effect of exercise in promoting a more rapid cardiac circulation, particularly in hurrying the passage of blood through the auriculoventricular orifice, thereby intensifying a presystolic murmur, bringing out a suspicious latent one, or causing a slight unclarity, not due to mitral disease, to disappear. The use of this test is said to have advantages over that of exercise, in that it eliminates the attending dyspnea of the latter. "In other words, as the patient administers the drug to himself the observer listens at the apex of the heart until the desired effect of the drug is produced. In this way several phases of increasing cardiac activity are observed." Morison's original observation has been confirmed by several different observers.

Rothschild⁵ discusses several additional interesting points in mitral stenosis and concludes that from his observation mitral stenosis is not an uncommon valvular disease in men between 21 and 31; that only 40 per cent of his cases gave a definite history of acute articular rheumatism; that early cases required careful examination, as the murmur is variable; that the presence or absence of a thrill is of little value; that it must be differentiated from the over-acting heart (the

³Benjamin, Julien E., M.D., and Brooks, Ernest R., M.D., Camp Funston, Fort Riley, Kan.: "Two New Diagnostic Methods for Patients with Cardiac Disease." *The Journal of the Am. Med. Assn.*, lxxii, No. 9, 707.

⁴Morison, R. A., *Brit. Med. Jour.*, April 20, 1918.

⁵Rothschild, Marcus A., M.D., Camp Devens, Ayer, Mass.: "The Diagnosis of Mitral Stenosis." *The Journal of the Am. Med. Assn.*, lxxii, No. 9, p. 652.

neurocirculatory asthenia complex); that the ocular-pupillary pressure has proved of great value in differentiating the two conditions, particularly in rapid hearts; that Morison's amyl nitrite test is of special value in cases of slow acting hearts.

By these two means, therefore, we have at our disposal measures of easily and safely slowing or speeding up the heart rate, so that obscure, early mitral diseases may be detected or ruled out.

Peabody and Wearn and Tompkins,⁶ from studying the basal metabolism in cases of the irritable heart of soldiers as well as from studies regarding the effect of the injection of epinephrin, conclude that hyperthyroidism does not play a significant role in the production of the symptom complex of the irritable heart of soldiers, but that a certain percentage of them reacting to epinephrin show that the tachycardia is an expression of an over-activity of the sympathetic nervous system.

HEMOLYTIC STREPTOCOCCI IN THE FAUCIAL TONSIL

Pilot and Davis⁷ have just completed an interesting piece of work on the subject of streptococcus carriers. They made swab cultures of the pharynx and tonsillar surfaces of 100 patients and from the crypts of excised tonsils of the same individuals immediately after extirpation with particular reference to the frequency and predominance of hemolytic streptococci.

Most of these patients were children between the ages of five and sixteen years who showed hyperplastic but not markedly diseased tonsils.

Sixty-one per cent of the swab cultures and 97 per cent of the erypts of these excised tonsils showed hemolytic streptococci, indicating the enormous high percentage of these organisms in the throats of individuals without fever, subjective symptoms of sore throat, or recent acute inflammation.

This group was further compared with a study of the throats of normal persons whose tonsils had been totally or partially removed some time previous, this comparison being made with the view to determine the possible influence of tonsillectomy on the occurrence of hemolytic streptococci in the throat. The results of this study showed hemolytic streptococci in only 25 per cent of the swab cultures and in 58 per cent from the tonsils; in other words, a marked reduction as compared with the throats of patients whose tonsils had not been removed.

⁶ Peabody, Major Francis W., M.C., U.S.A., Wearn, Lieut. Joseph T., M.C., U.S.A., Tompkins, Edna, U. S. Gen. Hosp. No. 9, Lakewood, N. J.; The Basal Metabolism in Cases of the Irritable Heart of Soldiers, Med. Clinics of N. A., Sept., 1918, p. 507.

⁷ Pilot, L. and Davis, D. J.: Hemolytic Streptococci in the Faucial Tonsil and their Significance as Secondary Invaders, *Jour. Infect. Dis.*, 1919, xxiv, No. 4.

The most important conclusions which Pilot and Davis reached from their studies are the following:

"Hemolytic streptococci are common in the normal and diseased throat. The chief foci of these organisms are the crypts of the tonsils.

"Hemolytic streptococci were recovered by swab cultures in sparse numbers from the pharynx and tonsillar surfaces in 61 per cent of throats, chiefly children with hyperplastic tonsils; and from the crypts of the excised tonsils of the same individuals in 97 per cent, usually in predominating numbers. Swab cultures are therefore unreliable in determining the incidence of this organism in the respiratory tract.

"The frequency of hemolytic streptococci is decidedly less in the throats of persons whose tonsils have been extirpated than in the throats of persons with normal tonsils.

"These streptococci agree in the main in their morphology, cultural characteristics, fermentation reactions and pathogenicity for rabbits, and are practically identical with hemolytic streptococci isolated from various human pathologic sources.

"Hemolytic streptococci from the crypts of the tonsils are probably the most important source of the streptococcus complications of the various acute infectious diseases, and of the terminal infections."

Comment.—This contribution of Pilot and Davis is a noteworthy one in the study of streptococcus carriers. It has been shown by many observers, particularly in the respiratory complications of measles and influenza, that the hemolytic streptococcus is to be considered a secondary invader in these complications and the causal organism of many of the severe bronchopneumonias and empyemas occurring in the recent epidemics, in both military and civil communities.

The conclusion from this work obviously is, that inasmuch as the tonsillar crypts harbor hemolytic streptococci and the removal of tonsils reduces the percentage of carriers, therefore tonsillectomy would be expected to reduce the chances of severe secondary infections and complications.

That the removal of the tonsil is indicated in many chronic carriers in diphtheria and meningitis has been repeatedly demonstrated. With this new indictment of the tonsil, as a harborer of streptococci, new evidence is submitted as an argument for its removal as a prophylactic measure in the prevention of secondary pneumonitis and pleuritis.

Pilot and Davis emphasize the role of the tonsil as a streptococcus carrier from a new point

of view, and one which is worthy of wide recognition and consideration. It will now be interesting and probably valuable to consider the tonsils from this viewpoint in all acute infectious disease, and to ascertain clinically whether secondary streptococcal complications occur more frequently in patients with old hyperplastic tonsils than in those whose tonsils have been removed. Likewise, in the segregation of measles patients, and those with other acute respiratory infections, the streptococcus carriers and non-carriers (similar to the work of Levy and Alexander) one will, in the future, inspect the throats of these groups with this work in mind.

STUDIES IN LUNG ARCHITECTURE

Any one attempting to interpret the various markings in an x-ray plate of the chest has noted the countless number of shadows which escape explanation. One is usually contented in calling these "hillus shadow," "lung marks," or "tracery," normal lung structure without essaying a finer definition.

Beginners in radiography often interpret these normal markings as evidence of pathology, and only after considerable experience in checking up with the clinical history and physical findings are they willing to admit their error. Any work which will aid in the solution of this extremely difficult branch of x-ray diagnosis is of greatest value.

In this connection Miller⁸ has contributed, not only a very valuable piece of work, but has likewise developed a careful technic for further study.

By the use of a differential injection mass, consisting of a suspension of corn starch in 70 per cent alcohol, to which vermillion granules are added when it is desired to obtain a uniform dense shadow, and ultramarine blue granules when a less dense and finely granular shadow is desired, he has made studies in the injection of the bronchi, pulmonary arteries, and the pulmonary veins in an attempt more accurately to define normal lung architecture.

The summary of his findings is as follows:

The pulmonary artery follows in all of its subdivisions the subdivisions of the bronchial tree and may be recognized as comparatively dense, linear markings along the lateral wall of the bronchi.

The main pulmonary veins, on the other hand, can be made out on the medial side of the stem bronchus, but in its ultimate distribution, its branches are not associated with the bronchi.

In reading x-ray plates care should be exercised not to mistake these linear markings for density produced by pathologic changes.

Ring-like shadows with sharp borders that ap-

pear along the bronchi are often due to the plane that the bronchi bear to the observer.

Comment.—This study suggests once more the importance of the knowledge of lung structure in interpreting densities cast on the x-ray plate.

EXAMINATION OF THE HEART AND GREAT VESSELS BY MEANS OF THE X-RAY

Within recent years very much progress has been made in radiography of the gastro-intestinal tract. The heart and great vessels of the chest have received less attention. Holmes⁹ has contributed a timely article to this subject.

In his exceedingly practical discussion, he emphasizes the importance of an accurate technic and record system; the taking of plates at six feet in order to obtain parallel rays cast by the heart shadow; the frequent discrepancy between the outline of the heart as obtained by percussion and by the x-ray.

He includes the heart-sheet used at the Massachusetts General Hospital, as well as a table copied from Claytor and Merrill, giving the average normal measurements of the adult heart.

He discusses and illustrates accurately ptosis of the heart, aortic regurgitation, mitral disease, diffuse enlargement of the heart due to dilatation, and general enlargement of the heart, due to fluid in the pericardium and adhesive pericarditis, specific aortitis, and aneurysm.

THE DIAGNOSIS OF ACIDOSIS

Much has been written on acidosis, but apparently the need for more and continued instruction still exists. Macleod¹⁰ gives a fairly complete readable discussion of the present status of this illusive phenomenon. In particular he calls attention to Sellards'¹¹ simple test, viz., under normal conditions only five grams of sodium bicarbonate can be taken a day without making the urine alkaline. When the alkaline reserve, however, is seriously depleted, that is, when acidosis exists, large quantities of bicarbonate, even as much as 100 grams a day can be taken without making the urine alkaline. This test has been found of particular value in the diagnosis of acidosis accompanying certain forms of renal disease. He concludes that Sellards' method is no doubt the best test of acidosis at present available in routine clinical work.

⁸ Miller, Wm. Snow: Stereo-Roentgenograms of the Injected Lung as an Aid to the Study of Lung Architecture, Bull. Johns Hopkins Hosp., 1919, xxx, No. 336.

⁹ Holmes, George W., M.D.: The Medical Clinics of North America, Boston No., 1918, No. 4.

¹⁰ Macleod, J. J. R., M.D.: The Diagnosis of Acidosis, Jour. Laboratory and Clinical Medicine, 1919, iv, No. 6.

¹¹ Sellards: Principles of Acidosis, etc., Harvard University Press, 1917.

Comment.—This simple method of estimating the alkaline reserve can be used not only in routine ward work, but in private home practice as well and is a valuable aid, for example, in the dif-

ferential diagnosis of edema, in attempting to localize primary responsibility for the dropsy, either in heart or kidney, in the presence of an associated acidosis.

COLLECTIVE ABSTRACT

SOME PHASES OF THE RECENT INFLUENZA EPIDEMIC

BY JEROME E. COOK, M.D., ST. LOUIS, Mo.

IT has seemed advisable in preparing the present article to depart a little from the traditional scope of these collective abstracts by including not only a review of the more recent literature, but also some mention of the observations made in the course of previous epidemics. Several considerations have urged toward this course. In the first place the articles dealing with the present epidemic of 1918-19 contain for the most part few if any references to the literature, the several authors being content in the stress under which most of the work was done merely to set down the result of their observation without the usual appended references. Then again, the fact that it has been some thirty years since influenza was prevalent in the world has made the present pandemic seem quite like the appearance of a new disease. It is not surprising, therefore, that certain facts concerning epidemic influenza, as, for instance, its remarkable fatality in pregnant women, should be set down as if newly discovered, whereas the same observation can be found in the literature of almost every epidemic since 1556 when it is recorded that "abortions and death of child-bed women were common." When we have gone over the literature of these former outbreaks, we cannot but echo the words of Struem-pell, who, writing in 1890 of the epidemic that has just swept over Europe, says: "The description of the clinical picture in previous epidemics, particularly that of 1830, is so complete that aside from accurate description of the temperature course—consecutive regular readings not being practised then—there is little new to add."

But if we had been able to add nothing to our knowledge of the clinical features of the disease, how have we fared in our attempts to gain a better knowledge of its pathology and bacteriology? Technical methods in these branches have been greatly improved in the past thirty years, and we might reasonably expect some real addition to our previous knowledge. Nor shall we be disappointed in this though we are yet far short of a decision concerning the microorganism or microorganisms

responsible for the disease and the exact relation to each other and to the disease itself of the several pathological conditions found in the lungs:

As to the various types of lung lesion there seem to be two fairly divergent views: The one which would divide the lung condition into rather distinct types and speak separately of the bronchitis, the lobar pneumonia, the bronchopneumonia and the interstitial pneumonia; the other, more prevalent view which groups these various lesions as part of a single process, the pathological picture in any given case depending not upon a difference in kind, but simply in the degree of involvement and the time it has existed. Thus the British Medical Research Committee gives the following picture of a typical autopsy:

There are 200 cc. of blood-stained watery fluid in the left pleura. The parietal pleura on both side is injected and contains scattered purpuric patches. The pericardium contains a little blood-tinged fluid. The lower lobe of the left lung is dark purple; there is a fine fibrinous roughening in places; it is heavy and retains its shape; to the feel it is soft and jelly-like with firmer areas scattered about. The upper lobe is similar in the posterior part but anteriorly is spongy and aerated. On section the lower lobe is of a dark red colour and airless, being full of a thin hemorrhagic exudate which flows out from the cut surface. In the firmer areas are found solid, dark red, rather dry areas. Some of these extend to the surface and resemble infarcts, others are rather spherical and located centrally. The bronchial tree is intensely injected and contains bloody fluid which pours out into the trachea. The cervical and paratracheal glands are injected, the latter a dark purple. The hilus glands are enlarged, very soft and hemorrhagic. The spleen is not enlarged. The patient appears to have been drowned by the lung exudate rather than killed by the toxemia. In cases of longer standing there is in addition a marked bronchopneumonia with pus in the smaller tubes and sometimes areas of grey hepatization. In several cases a purulent bronchitis and peribronchitis exists, the lung presenting a marbled appearance owing to the purulent infiltration of the bronchial wall.

To this description might be added that there is often, probably in more than one-fourth of the cases, localized abscess-formation within several or many of the patches of pneumonic consolidation. These abscesses are a somewhat later phenomenon and are superimposed upon the pneumonic process. True empyemas may likewise occur late, but are not frequent. In about 10 per cent of the cases with severe lung involvement

there is an interstitial emphysema brought about by rupture of distended air sacs in the lung, dissection of the air back along the blood vessels to the hilum, then through posterior and superior mediastinum to the tissues of the neck.

Many observers make rather sharp distinction between the lobar pneumonic and the bronchopneumonic type of the lung lesions. It is difficult to see a clear justification for any such division. In certain very severe cases dying early there is a state of engorgement of the lungs which can best be described as lobar. There are many facts in favor of the contention that the so-called "lobar" form of the latter stages is only a phase of the bronchopneumonic form brought about by a fusion of many bronchopneumonic areas. Even those who make claim for the lobar pneumonic form do not describe the typical picture of lobar pneumonia, the granular cut surface, the fibrin plugs, and the fibrinous pleurisy with "shaggy" exudate; and certainly the clinical course, aside from the frequent onset with chill, is not of the lobar type. One misses the characteristic fever curve, the leukocytosis, and the rusty sputum. So that it may be best to adhere to the view of Ribbert that, although the pneumonia may be lobar in distribution, it is not so in type.

Naturally enough, the greatest interest in the present epidemic has centered on the question of etiology, not alone as a scientific problem of its own, but as a guide to more effective methods of prophylaxis and treatment. What is the causative agent of influenza? What is the causative agent of influenza pneumonia? What role do the various bacteria found in the lungs play in the course of the pneumonia and what relation do they bear to the mortality? May the pneumonia be caused by any one of several different organisms? At the close of the epidemic of 1889-90 the opinion prevailed that the disease, or at least the pneumonia, was probably caused by the streptococcus which was found so frequently in the sputum and in the lungs at autopsy. Nevertheless there existed a very healthy skepticism about the matter, and when Pfeiffer a few years later ascribed to the influenza bacillus the entire blame for the disease his view seemed to meet with almost universal acclaim and has prevailed, though not without challenge, until recently. The case against the bacillus of Pfeiffer may be stated briefly thus: Most investigators are unable to find the influenza bacillus in anything like 100 per cent of influenza cases; when found, it is rarely in pure culture; it is found in a large per cent of patients suffering with measles, pertussis, and other diseases with respiratory manifestations and might with equal reason be urged as

the cause of any one or all of these diseases; it is likewise a frequent resident of the normal pharynx; it has not been shown to fulfill the third of Koch's postulates; when found in the lungs of patients dying of influenza pneumonia, it is almost invariably associated with other organisms of known pathogenicity and it is quite unreasonable to suppose that these other organisms, among which are the pneumococci, the *Staphylococcus pyogenes*, the bacillus of Friedlander, and the *Streptococcus hemolyticus*, are secondary invaders and not primary factors in the pneumonia, even if it be granted that the *Bacillus influenzae* may be responsible for the disease in its uncomplicated form. None of these arguments have gone unchallenged. An increasing number of bacteriologists testify to the almost constant presence of the Pfeiffer bacillus in the upper air passages of influenza patients provided a properly refined technic be used for its demonstration. The bacillus is likewise present in a very large per cent of pneumonic lungs at autopsy and, considering the very low viability of the influenza bacillus, it has been suggested that it would be found in practically 100 per cent of autopsies performed promptly after death. It is at all events the most common organism found in these lungs; why should not the other organisms be looked upon as secondary invaders? Anatomically, the pneumonia is of a type entirely its own and bears little resemblance to any other pneumonic process except that caused by *Bacillus pestis*, as has been pointed out by Symmers. If the *Streptococcus hemolyticus* is responsible for the mortality in the pneumonia of influenza, it does not give rise to the anatomical picture of streptococcus pneumonia. A large opportunity for the study of streptococcus pneumonia existed during the previous year at the army camps; many of the same observers testify to the essential anatomical difference of the influenza and the streptococcus pneumonia. As to the inability to reproduce influenza in animals with cultures of influenza bacillus there is little to be said. The bacillus is not pathogenic for our usual experimental animals, and "it is well known that the monkeys in our zoos do not suffer during the epidemics." (Leichtenstern and Stocker). There are a few investigators who claim to have reproduced the disease in monkeys and man by the injection of bronchial secretions both before and after passage through a Chamberland filter, but their results are inconclusive, have not been confirmed and, in fact, are not in accord with similar investigations by others. All in all, the research along this promising line has been strikingly meager unless much of it remains unpublished. Attempts to demon-

strate a complement-binding factor in the blood of patients with influenza pneumonia using preparation of *Bacillus influenzae* as antigen have likewise been inconclusive. If any complement binding factor exists it must be quite weak. Yet there may be antibodies of another order as demonstrated by Parker, who obtained a highly toxic substance in the filtrate of cultures of influenza bacilli. Two cc. of this toxin killed a medium size rabbit in three hours. Repeated small immunizing doses protected rabbits against a lethal dose. The serum of rabbits so protected will protect other rabbits either by mixture with the toxin *in vitro* or by injection just before or after injection of the toxin.

Thus far, then, nothing has been settled. Those who would have the bacillus of Pfeiffer the prime agent in the causation of influenza and its complications have much evidence in their favor. Yet they have by no means proved their case. The possibility that the disease is due to a virus similar to those which are responsible for the acute exanthemata cannot be denied; it is thus far nothing but an attractive theory with several points in its favor.

The association of pregnancy and influenza has attracted considerable notice in the present epidemic on account of the startling fatality of the disease when it attacks pregnant women, particularly during the latter months of gestation. As has been remarked before, this is no new observation, yet it would seem that the mortality among pregnant women has not been as extreme in some epidemics as in others. Indeed, it seems well established that there is considerable variation in the general severity of the several epidemics and this may likewise account for the fact that pregnant women fare better in some epidemics. However that may be, few will deny that the influenza of the recent epidemic has run an extremely unfavorable course in pregnant women and while few writers have published such appalling figures as Bland, who seems to claim that about 50 per cent of pregnant women with influenza die, yet none view the situation in any but a serious light and in any given locality the death rate among pregnant women has been very considerably increased during the epidemic. The mortality of influenza pneumonia is at least 15 per cent greater in pregnant than in nonpregnant women. Whether pregnant women are more susceptible to the infection in the first place is undecided. The frequent occurrence of abortion during the influenza does not affect either favorably or unfavorably the woman's chance of surviving and the induction of premature labor is rather generally decried as worse than useless. Norris

induced labor in three pregnant women who did not have pneumonic complication; they all recovered. It would seem, in view of the marked liability to, and fatality of the pneumonic complication, that interruption of pregnancy in the first hours of the disease might lessen the total mortality in pregnant women. No one except Norris appears to have been bold enough to carry out any such plan, and unfortunately his cases are too few to allow of any decision. As far as they go they are encouraging.

As to the therapy of the disease we must once more acknowledge our woeful ignorance. Nothing brings this home to us as clearly as the almost uniform death rate wherever the statistics are published. Most cases do well on general measures,—rest in bed, fresh air, etc. Camphor in large doses has been much praised by some. It was used in the epidemic of 1889 as well as in the present one, but does not seem to have met with any general acclaim. In fact, the only drug which has survived through the years with any measure of credit is opium.

Its ability to relieve in a measure the distressing pains, to improve the sleep, and to ameliorate the harassing cough is probably responsible for any good it may do, for in thereby lessening the strain upon that intangible factor, the patient's vitality, it conserves the only weapon of real resistance to the disease of which we have any knowledge.

A word remains to be said concerning serum therapy. A few papers have appeared dealing with the results obtained in treating influenza pneumonia with the whole blood or the serum of patients convalescent from the same disease. The results have been distinctly encouraging, but in a disease which differs so greatly in severity from time to time great caution is necessary in interpreting the results of therapy. Yet it is difficult to read the recent report of McGuire and Redden, who used the pooled serum of patients recently recovered from pneumonia in the treatment of early pneumonic cases, without feeling that it marks a distinct therapeutic advance. The serum must be used in fairly large amounts, 120 cc. being the average dose, and the problem of a sufficient number of suitable donors will be a distinct drawback to its employment outside of large hospitals. Nevertheless, if subsequent reports of the method confirm the results in these first one hundred cases a step forward will have been made in the struggle with a disease against whose ravages we have been comparatively powerless.

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FAVOR CHANGED LICENSURE EXAMINATIONS

Dr. George Blumer, dean of the School of Medicine of Yale University, at a recent meeting of medical bodies in Chicago, spoke on the subject, "Desirability of Changing the Type of Licensure Examinations." A related topic was the subject of an address by Dr. John S. Rodman, secretary of the National Board of Medical Examiners, of Philadelphia, who read a paper on "Cooperation in Examinations by the National Board of Medical Examiners, the State Medical Licensing Boards and Medical Schools."

The question of medical licensure was a part of the program of the Annual Congress of Medical Education and Licensure and affiliated organizations, including the Council of the American Medical Association on Medical Education, the Federation of State Medical Boards, and the Association of American Medical Colleges.

Medical education, hospital standardization, annual registration of physicians, and related subjects were dealt with by speakers. Several medical officers of the army and navy were in attendance, including Brigadier General E. L. Munson, M.C.; Brigadier General F. A. Winter, Army Medical School; Lieutenant Colonel H. D. Arnold, M.C.; Rear Admiral E. R. Stitt, Navy Medical School; and Captain F. C. Waite, S.C.

Surgeon General Issues Request

The Surgeon General of the army desires that manuscripts on medical subjects written by medical officers retired from active duty and based on war experiences and official records be submitted as heretofore to the secretary, Board of Publications, Surgeon General's Office, Washington, D. C., as a courtesy to the Surgeon General. A carbon copy is requested. Upon approval the original will be forwarded to the journal designated for publication.

DISCUSS JEWISH HEALTH WORK

Jewish health work in the United States will be reviewed in perspective by the National Conference of Jewish Charities, which will take place May 27 to June 1, at Atlantic City, N. J. The morning and afternoon sessions on Friday, May 30, will be devoted to the discussion of health work. Dr. H. J. Moss, chairman, will present a report of Jewish health work. Discussion of the report will be led by A. Ray Katz, chairman of the Jewish Health Bureau, who assisted Dr. Moss in the recent health week conducted in Baltimore, Md., by the Jewish Educational Alliance. Health insurance, the influenza epidemic, hospital social service, convalescent care, and tuberculosis will be topics of discussion.

VICTORY MEETING OF A. M. A.

The Victory Meeting of the American Medical Association, as the annual conference has been named, is attracting such general interest in advance of the dates scheduled for the gathering, June 9 to 13, that the hotel capacity of Atlantic City, N. J., is being heavily taxed by early reservations. The local committee on arrangements will attend to reservations upon request. It has offices at 1801 Pacific Avenue, Atlantic City. Foreign governments are sending delegates, among them General Melis, Colonel A. Depage, Dr. P. Nolf, and Professor J. Duesberg, of Belgium; and Dr. Juan Guiteras, director of public health of Cuba; Dr. Emilio Martinez, of the National University of Cuba, and Dr. Julio Carrera, chief surgeon of the Havana Emergency Hospital, Havana, Cuba. For the convenience of members of the American Medical Association, the program of the National Conference of Social Work, which will meet in Atlantic City June 1 to June 9, has been so arranged that the health division and other divisions interested in health matters will hold their sessions toward the end of that week.

SOCIAL CONFERENCE MEETS IN JUNE

Those in charge of arrangements for the forty-sixth annual meeting of the National Conference of Social Work, June 1 to June 8, at Atlantic City, N. J., during the week preceding the Victory meeting of the American Medical Association, expect an attendance of more than 4,000 delegates. Dr. C.-E. A. Winslow, professor of public health at Yale University, is chairman of the health division, which has for its theme, "Health and the Standard of Living." Sir Arthur Newsholme, chief medical officer of the Local British Government Board, is coming from England, and Dr. René Sáñd, professor of social and industrial medicine at the University of Brussels, will attend from Belgium. Dr. C. Mulon, who had charge of the *creches* maintained during the war by the French government for the benefit of women workers in the munitions factories, represents France. The program of the health division is devoted to discussion of housing, family food supplies, tuberculosis, medical and nursing care, health insurance, infant mortality, industrial hazards, and venereal diseases. A health program for children will be considered by speakers in the children's division, while topics in other divisions include the problem of public aid for mothers, handicapped soldiers, and state care of mental diseases.

The monthly *Bulletin of the Department of Health of the City of New York*, for January, is devoted to a lengthy discussion of the drug evil and the drug law by Cornelius F. Collins, Justice of the Court of Special Sessions, New York City.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

DISPENSARIES—THEIR MANAGEMENT AND DEVELOPMENT.* A book for administrators, public health workers, and all interested in better medical service for the people. By Michael M. Davis, Jr., Ph.D., director of the Boston Dispensary, and Andrew B. Warner, M. D., superintendent of Lakeside Hospital, Cleveland, Ohio.

The title of this book is "Dispensaries" but the subject is largely medical service. While the history and extent of dispensaries and their equipment and organization are given attention, the book really deals with the dispensary "as a form of organization for rendering efficient medical service to the people." Its place is stated thus: "The dispensary represents an organized system for the practice of medicine in the treatment of patients who are able to go to see the doctor, just as the modern hospital represents the organized practice of medicine for patients who are sick enough to be in bed."

Section I of the book gives the historical view of the origin and rise of dispensaries. Section II deals with fundamental principles under the titles: "Who Are Dispensary Patients? Who Should Be Dispensary Patients? the Ten Essentials of a Clinic; Medical and Administrative Organization and Social Service."

Sections III and IV deal with technique and special types of dispensaries. Section V deals with public problems: "The Dispensaries and the Medical Profession; the Efficient Dispensary of the Future; Financing Better Medical Service; the Organization of Dispensary Service for a Community; and Conclusions." A bibliography is added.

Physicians will find this book of profound interest in these new times when medical practice is being adjusted to the new conditions of society. That there is bound to come a greater coöperative organization of medical service no observer can doubt. The lines of development indicated in this book are, therefore, worthy of the most careful study.

THE HUMAN MACHINE AND INDUSTRIAL EFFICIENCY.† By Frederic S. Lee, Ph.D., LL.D., Dalton professor of physiology in Columbia University; president of the American Physiological Society; consulting physiologist to the U. S. Public Health Service; chairman of the Subcommittee on Fatigue in Industrial Pursuits of the National Research Council, etc.

In this brief book Professor Lee has driven home some important industrial truths which should interest the physician as well as industrial managers and workers. In it he pleads for a physiological basis for employment and briefly points out the requirements for real efficiency.

The maintenance of working power from day to day and week to week is the object sought and to this end the author discusses the question of fatigue as it affects or is affected by the qualifications of the worker, resting periods, the length of the working day, night work, continuous employment and overtime work. The subject of women in industry is briefly discussed with the general conclusion "that the female body considered as a machine is different in certain respects from the male body and that the conditions under which the greatest degrees of efficiency can be secured for the two, respectively, are probably different in certain features."

Industrial medicine is discussed briefly with approval; food in its relation to efficiency is presented; scientific management is criticised because it concerns itself with improving material equipment while "in its dealings with the human machine it falls far short of the ideal;" vocational education is destined to be "only completely satisfactory when it is placed on a sound physiological basis."

Summarizing the subjects discussed, the author sets forth the outlines of a program in a paragraph as follows: "In our analysis of the conditions of efficiency we always come ultimately to the underlying fact that the worker is a physiological mechanism and must be treated as such. Here is the proper scientific basis for the organization of industrial work. We already have the promising beginnings of a science of industrial physiology. What is needed now is a great extension of the method of experiment, partly in laboratories, but especially in factories, by which facts may be accumulated, principles may be established, and this new science may be rationally developed. In this direction I believe that industry has in America today an unparalleled opportunity for progress."

THE HUMAN SKELETON.‡ An Interpretation. By Herbert Eugene Walter, associate professor of biology, Brown University, 214 pages, 175 illustrations.

The little volume cannot be considered as a serious scientific effort, but only as an interesting and well written story in which the bones of the body play the leading role. The beneficial results of popularizing science is doubtful. Such works are vague and superficial as far as science is concerned and therefore of necessity must attract the interest of the reader because of the rapidity of movement and a free use of the spectacular.

The author excuses the appearance of his book upon the grounds that in as much as each person possesses a skeleton of his own a better acquaintance with it should constitute a source of intellectual delight and satisfaction; and because the layman usually regards a consideration of his "insides" as an indelicate subject, and forbidding to one simply in quest of satisfaction of natural curiosity. The book is a popular equivalent of the excuses. H. W.

(Continued on Adv. Page 22)

*New York: The Macmillan Co., 1918. \$2.25.

†New York: Longmans, Green & Co., 1918. \$1.10.

‡New York: The Macmillan Co., 1918. \$1.75.

For Medical and Welfare Directors

FIRST AID IN EMERGENCIES

By ELDREDGE L. ELIASON, A.B., M.D. Former Lecturer on First Aid in Emergencies, University of Pennsylvania.
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HYGIENE OF THE EYE

By WILLIAM CAMPBELL POSEY, A.B., M.D. University of Pennsylvania.
120 Illustrations. 344 Pages. Octavo. \$4.00 Net.

None but an expert could give so effectively the essential points as to the structure of the eye, its care and protection in health and treatment in disease, with the intention of striking at the root of the large percentage of eye troubles and blindness in the American population. Dr. Posey bears a threefold relation to the subject: As practicing surgeon, as teacher in two great medical schools, and as Chairman of the Commission of Conservation of Vision in Pennsylvania. He has prepared a book of the greatest value to ophthalmologists, practitioners, and health officers, as well as for the individual. It is an authoritative and practical guide to the prevention and conservation of eyesight under all conditions and as such will prove of practical value to the members of the medical profession engaged in industrial work.

HOME AND COMMUNITY HYGIENE

By JEAN BROADHURST, Ph.D. Teachers' College, Columbia University.
428 Pages. 1 Colored Plate. 119 Illustrations. \$2.00 Net.

"This is nothing less than an encyclopedia of hygiene written in the simple style which makes it understandable and interesting to the most inexpert layman and yet so scholarly and authoritative as to command the respect of the scientific physician or sanitarian. For the professional library, for the school, for the family. It is to be commended in the heartiest and most unhesitating terms. It is of exceptional interest and practical value."—*New York Tribune*.

It is a practical textbook on the entire subject both from the individual and community point of view. Problems of sanitation and health are dealt with in helpful detail.

MOUTH HYGIENE

By JOHN SAYRE MARSHALL, M.D., Sc.D. Syracuse University.
2nd edition revised. 22 Illustrations. 12mo. \$2.00 Net.

The importance of mouth hygiene to public health is now receiving the attention it deserves. This little handbook covers the subject thoroughly. The facts given and the suggestions made are of the greatest value to those interested in community hygiene as well as to individuals. The author points out the connection between oral diseases and immorality, drunkenness, crime, and insanity. He discusses the prevalence of oral diseases, the care of the mouth under all conditions, and shows how special diseases of the throat, the ear, the eye, the stomach, intestines, etc., are caused by oral sepsis. There are also chapters on the psychological effects of dental and oral diseases and physical deformities, with a special chapter on the oral hygiene propaganda and the results of experimental work.

HIRSCHFELDER DISEASES OF THE HEART AND AORTA

By ARTHUR DOUGLAS HIRSCHFELDER. University of Minnesota.
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FUCH'S OPHTHALMOLOGY

By ALEXANDER DUANE. Knapp Memorial Hospital, New York.
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BOOKS OF THE MONTH

(Continued From Page 92)

A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR.* By E. B. Gleason, M.D., professor of otology in the Medico-Chirurgical College Graduate School, University of Pennsylvania.

A new edition of the textbook which has long been a favorite amongst medical students. In this edition the author has thoroughly revised his text, omitting much of the antiquated and obsolete, and adding with brief but careful consideration recently demonstrated facts and theories. The reading matter is concise, the illustrations for the most part well chosen and numerous, the whole making an excellent book for the beginner in otolaryngology, and the general practitioner.

TUBERCULOSIS OF THE LYMPHATIC SYSTEM.† By Walter Bradford Metcalf, M.D., Associate in clinical medicine, University of Illinois, College of Medicine.

Metcalf has written a very readable monograph on a subject only too little emphasized, namely, glandular tuberculosis in childhood. His discussion is most complete, including a reference to the anatomy and physiology of the lymphatic system, etiology, pathology and symptomatology of the disease of tuberculosis of the lymphatic glands, diagnosis and treatment. There is a welcome, quite complete bibliography at the close. His references to the literature on these subjects is most complete and desirable. His enthusiastic championing of the tuberculin treatment and his dismissal of surgical treatment is in line with modern thought on this subject.

The book is attractively printed and illustrated. The chapters on treatment are particularly complete.

A TEXT-BOOK OF PHYSIOLOGY.‡ For medical students and physicians. By William H. Howell, Ph.D., M.D., professor of physiology, Johns Hopkins University. Seventh ed., revised. 8vo., 1,059 pp. 307 illustrations.

Howell's work must still be considered the leading American text-book of physiology. The seventh edition bears no fundamental change as to the arrangement of material, or the general principles of presentation. However, the work has been thoroughly revised and brought up to date as nearly as is possible. The text is lucid and the manner of presentation is direct and forceful.

But one criticism might be offered and that is the tendency of the author to compliment the mentality of the student by not drawing general conclusions in regard to disputed points and opposing theories. Such a tendency is highly valuable for the advanced student, but it tends to weaken the beginning student in his beliefs of the accuracy of the science and its fundamental value as an aid to a proper understanding of allied subjects of medicine. However, as the author explains, the best that a text-book can hope to accomplish is to give as clear a picture as possible of the tendencies of the times. This has been accomplished in an admirable manner.

Physiology is a rapidly growing subject which often requires readjustment of its theories. The thinking student should rapidly appreciate this condition and learn to evaluate data and draw conclusions from the facts or evidence presented. Dogmatic statements and submissive acceptance of such, especially where theories are concerned, can never advance science. Hence, the criticism offered above applies more to the reader than to the author.

(Continued On Page 24)

*Philadelphia: W. B. Saunders Co., 1918. \$3.00.

†New York: The Macmillan Co., 1919. \$2.75.

‡Philadelphia: W. B. Saunders Co., 1918. \$5.00.

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BOOKS OF THE MONTH

(Continued From Page 22)

ABSTRACTS OF WAR SURGERY.* Prepared by the division of surgery, Surgeon General's office.

The Division of Surgery of the Surgeon General's office distributes to the medical personnel in each American military hospital a mimeographed copy of abstracts of selected surgical articles dealing with war surgical topics. These abstracts proved to be of such unqualified pedagogical value that it became necessary to publish them in book form. The abstracts are arranged topically and cover the subjects of wound treatment, tetanus, gas gangrene, abdominal injuries, cardiovascular surgery, joints, fractures, burns, anesthesia, trench foot, foreign bodies, jaws and face, and peripheral nerve injuries.

The volume furnishes an excellent resumé of the literature of war surgery from 1914 to 1919, and, although far from complete in its scope, nevertheless serves a marked utilitarian purpose.

A TEXT-BOOK OF GENERAL BACTERIOLOGY.† By Edwin O. Jordan, Ph.D., professor of bacteriology in the University of Chicago and in the Rush Medical College.

The sixth edition of this text-book of general bacteriology contains an entirely new chapter on the pneumococcus and an extensively revised one on the meningococcus, as well as new sections on infectious jaundice, rat-bite fever, and trench fever. A text-book which has gone through six editions in eleven years hardly needs further commentary on its excellence.

The only suggestion which one might wish to make to Dr. Jordan is that individual chapters on certain bacteria might be a bit more detailed and exhaustive. Although the book in its original preface modestly states it is only a general introduction to the subject, and that an exhaustive treatment has not been attempted, still with the increasing interest in infectious and bacterial diseases, and with the feeling that the physician should picture disease more and more in bacteriological and epidemiological terms, one feels a desire for more than seven pages of discussion of the influenza bacillus and ten pages of the meningococcus, or even fourteen pages of the pneumococcus. We wish Dr. Jordan would write not a text-book on general bacteriology but a system!

BOOKS RECEIVED

ESSENTIALS OF SURGERY. A Text Book of Surgery for Student and Graduate Nurses and for Those Interested in the Care of the Sick. By Archibald Leete McDonald, M.D., the Johns Hopkins University. Pp. 265, illustrated, \$2.00. B. Lippincott Co., Philadelphia, 1919.

PRINCIPLES AND PRACTICE OF OBSTETRICS. By Joseph B. DeLee, A.M., M.D., professor of obstetrics at the Northwestern University Medical School. Third edition, thoroughly revised. Cloth, pp. 1,089, illustrated, \$8.50. W. B. Saunders Co., Philadelphia, 1918.

A TEXTBOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D., professor of bacteriology in the University of Chicago and in the Rush Medical College. Sixth edition, thoroughly revised. Cloth, pp. 691, illustrated. Price \$3.75 net. W. B. Saunders Co., Philadelphia, 1918.

RE-EDUCATION. An Analysis of the Institutional System of the United States. By George Edward Barton, A.I.A., director of Consolation House, president of the National Society for the Promotion of Occupational Therapy. Pp. 120, \$1.00. Houghton Mifflin Co., the Riverside Press, Cambridge, 1917.

*St. Louis: C. V. Mosby Co., 1918. \$4.00.

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NEOPLASTIC DISEASES. A Text Book on Tumors. By James Ewing, M.D., Sc.D., professor of pathology at Cornell University Medical College, New York City. Cloth, pp. 1,027, illustrated, \$10.00. W. B. Saunders Co., Philadelphia, 1919.

THE OPERATIVE TREATMENT OF CHRONIC INTESTINAL STASIS. By Sir W. Arbuthnot Lane, Bart., C.B., consulting surgeon to Guy's Hospital and to the Hospital for Sick Children, Great Ormond Street. Fourth edition, revised and enlarged. Pp. 328, illustrated. Oxford University Press, Warwick Square, London, 1918.

ULTRA VIOLET RAYS IN MODERN DERMATOLOGY. Including the Evolution of Artificial Light Rays and Therapeutic Technique. By Ralph Bernstein, M.D., Philadelphia, Pa., professor of dermatology, Hahnemann Medical College, Philadelphia; clinical chief, Skin Section, Hahnemann Hospital Dispensary, Philadelphia; Pp. 162, illustrated. L. Achey & Gorrecht, Medical Publishers, Lancaster, Pa., 1918.

PRACTICAL PHYSIOLOGICAL CHEMISTRY. A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science. By Philip B. Hawk, M.S., Ph.D., professor of physiological chemistry and toxicology in the Jefferson Medical College of Philadelphia. Sixth edition, revised and enlarged. Illustrated, \$3.50. W. B. Saunders Co., Philadelphia, 1918.

SURGICAL TREATMENT. Volume III.—A Practical Treatise on the Therapy of Surgical Diseases for the Use of Practitioners and Students of Surgery. By James Peter Warbasse, M.D., formerly attending surgeon to the Methodist Episcopal Hospital, Brooklyn, N. Y. In three large octavo volumes and separate desk index volume. Pp. 861, 864 illustrations. \$30.00. W. B. Saunders Co., Philadelphia, Pa.

PERSONAL HYGIENE AND HOME NURSING. A Practical Text for Girls and Women for Home and School Use. By Louisa C. Lippitt, R.N., assistant professor of corrective exercises, University of Wisconsin; A head reconstruction aide in physiotherapy, Medical Department United States Army, etc. Pp. 256, illustrated. World Book Co., Yonkers-on-Hudson, New York, 1919.

WORLD-POWER AND EVOLUTION. By Ellsworth Huntington, Ph.D., research associate in geography, Yale University. Author of "Civilization and Climate," etc. May be briefly described as the influence of climate upon human affairs as applied to the momentous problems growing out of the World War. Cloth, pp. 287, illustrated, \$2.50. Yale University Press, New Haven, 1919.

THE HUMAN MACHINE AND INDUSTRIAL EFFICIENCY. By Frederic S. Lee, Ph.D., LL.D., Dalton professor of physiology in Columbia University; president of the American Physiological Society; consulting physiologist to the United States Public Health Service; chairman of the Subcommittee on Fatigue in Industrial Pursuits of the National Research Council, etc. Pp. 119, illustrated, \$1.10. Longmans, Green & Co., New York, 1918.

TEXT-BOOK OF CHEMISTRY. Inorganic and Organic, with Toxicology. For students of medicine, pharmacy, dentistry and biology. By R. A. Witthaus, A.M., M.D., late professor of chemistry, physics, and toxicology in Cornell University. Seventh revised edition by R. J. E. Scott, M.A., B.C.L., M.D., Fellow of the New York Academy of Medicine; editor of Witthaus' Essentials of Chemistry and Toxicology, etc., \$4.00. William Wood & Co., New York, 1919.

WAR SURGERY OF THE FACE. A Treatise on Plastic Restoration after Facial Injury. By John B. Roberts, A.M., M.D., F.A.C.S., professor of surgery in the University of Pennsylvania Graduate School of Medicine; lecturer in the Civilian School of Plastic and Oral Surgery established in Philadelphia by the Surgeon General, U. S. A. Prepared at the suggestion of the Subsection on Plastic and Oral Surgery Connected with the Office of the Surgeon General. Pp. 442, illustrated. Price \$4.50. Wm. Wood & Co., New York, 1919.



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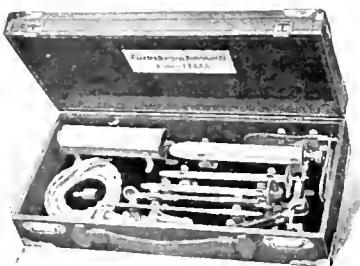
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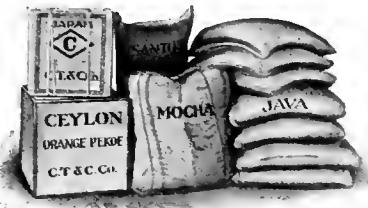
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DISBAND GENERAL MEDICAL BOARD

The General Medical Board and Medical Section of the Council of National Defense ceased its existence on April 1st. Dr. Franklin Martin, chairman of the Medical Board, in a letter to the seventy-five physicians constituting the Board set forth the achievements which had been accomplished. Secretary of War Newton D. Baker expressed the appreciation of the government for the service rendered.

Secretary Baker, in his letter, said:

"While it would be invidious to make any appraisal of the work of your board in comparison with that of any other agency organized in the emergency, I need not, I know, assure you that the government appreciates deeply and genuinely the great and essential contribution which has been made by the Medical Board in the mobilization of the civilian profession, its classification as to specialties and fitness, and in the preparation and organization of information which would enable the Department to secure from the manufacturers of the country the vitally necessary instruments and supplies for the medical care and attention of our men in the field."

Dr. Martin said:

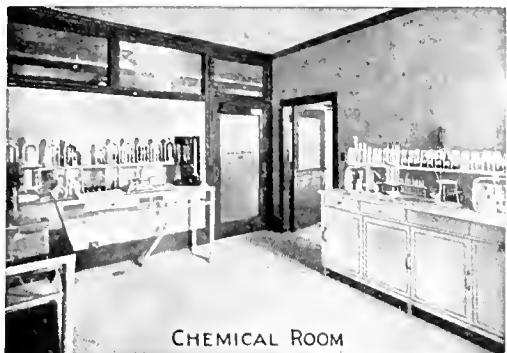
"Not until the history of our part in the great war is written will the people realize the important role the medical profession of the United States played in making our country a deciding factor in winning the war. Do you realize that in the year before our entry into the conflict the commissioned officers in the medical departments of the army and the navy numbered less than five hundred in each service and that practically 40,000 civilian doctors had been added to these two corps by the time hostilities had ceased? When the story is told of the enrollment of these thousands of doctors, it must give the largest credit to our many state and county committees who labored so patriotically and continuously to carry out the recommendations of the organization under which they worked, the Council of National Defense, and thus aided the administrative departments of the Surgeons General of the army, the navy, the Public Health Service, and the Provost Marshal General.

"The work of these committees under the direction of the General Medical Board had to do with activities of which the following is a brief summary: Recruiting medical officers; standardization of medical and surgical supplies; cooperation in controlling venereal diseases; mobilizing five thousand dental surgeons; establishing committees on hygiene, sanitation, general surgery, orthopedic surgery, ophthalmology, otology, rhinology, and laryngology, general medicine, nursing, women physicians, and medical schools; organizing medical advisory boards; the study of industrial medicine; securing through legislation increased rank for reserve medical officers; and finally, individual classification of the members of the profession through the medium of the Volunteer Medical Service Corps.

"I want you to know that those of us who have had the responsibility of organizing and enrolling the medical profession and resources appreciate the value of your work and thank you for it from the bottom of our hearts. This includes the Secretary of War who presides over the Council of National Defense, the Secretary of the Navy who is one of its members, and the President of the United States, who appointed the Council and on two occasions has said, in speaking of our state and county committees: 'Will you not be kind enough to convey to them a message of sincere appreciation from me of their services as authorized governmental agencies?'

Ohio Medical Society Discusses Health Insurance

The Ohio Medical Society will devote a special session to the subject of health insurance, at its annual meeting, May 6, 1919. The speakers will be Lee K. Frankel, third vice president of the Metropolitan Life Insurance Company; Otto P. Geier, M.D., of Cincinnati, chief physician of the Cincinnati Milling Machine Company; William Gale Curtis, president of the National Casualty Company, Detroit, and John A. Lapp, managing editor of MODERN MEDICINE. A majority of the Ohio Commission on Health and Old Age Insurance reported in favor of compulsory health insurance.



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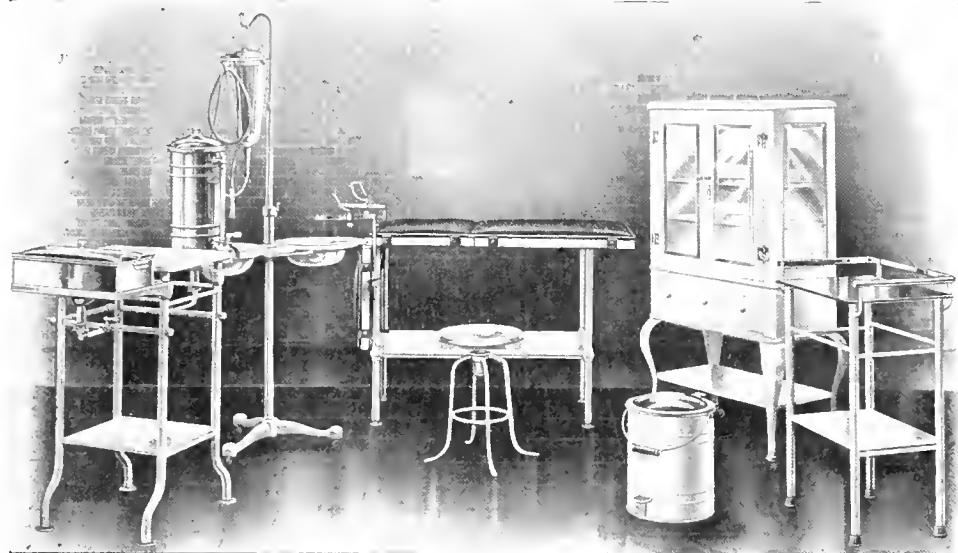
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MILWAUKEE HAS NUTRITION CLINIC

In a neighborhood of home-owners and workingmen's families in Milwaukee, Wis., a nutrition clinic is being conducted under the direction of the Wisconsin Anti-Tuberculosis Association. A survey will be made of the results gained. For the purpose of the survey the work of the clinic has been divided into four groups—school service, medical service, dietetic service, and home service. Among 665 children examined in a preliminary survey were found 130 who showed undernourishment to the extent of 10 per cent or more. Their ages varied from six to fifteen years. The proportion of girls was 24 per cent of a total of 304, and of the boys, 16.1 per cent of a total of 364 pupils.

INDUSTRIAL PHYSICIANS IN CONFERENCE

The Industrial Physicians and Surgeons of Pennsylvania considered the question of a more active cooperation with state health bureaus and health officials during the eighth conference of the organization, which took place last month at Philadelphia. A paper on the subject of "Carbon Monoxide Poisoning—Its Prevention and Treatment," presented by Colonel A. J. Lanza, of the United States Public Health Service, appears in this issue of MODERN MEDICINE. Dr. Alice Hamilton, of the Bureau of Labor Statistics, spoke on "Health Hazards in the Manufacture of Dyestuffs." "Health Insurance—Its Advantages and Disadvantages" was discussed by John A. Lapp, formerly director of the Ohio Old Age and Insurance Commission, and Frederick L. Hoffman, Prudential Insurance Company.

RESIDENT PHYSICIANS FOR FACTORIES

The presence of a resident physician at every large industrial plant, within easy access of the working force, was deemed a necessary condition in factory management by the delegates in attendance at a "Safety First" Congress which took place in Cincinnati, January 10 and 11, 1919. The Ohio Industrial Commission conducted the meeting at the request of large employers in that city. Its purpose was the study of accident prevention. Smaller plants, it was urged, should retain a competent assistant who could render first aid and summon a physician when needed, if it were not practical to provide a resident physician. The plan is believed to contain economic and social values that will help employers solve some of their problems. Several physicians representing industrial organizations and civic bodies were in attendance.

IN THE HEALTH BULLETINS

The February issue of *Health News*, the monthly bulletin of the State Department of Health of New York, prints a series of articles on the problems of health centers.

The February *Bulletin of the Minnesota Health Association* contains brief articles on public health nursing, care of tuberculosis, ventilation, venereal disease, and cancer prevention.

The *Bulletin of the West Virginia State Department of Health* for January discusses child welfare in a number of practical articles, the prevention of pneumonia, and the work of the hygienic laboratory at Charleston.

The monthly *Bulletin of the Department of Public Health and Charities, City of Philadelphia*, for February, discusses the relation of the movies to the health of school children, eyestrain, mortality incident to pregnancy, and an experience with the Schick test and toxin-antitoxin mixture in industrial schools.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians
& for Others Interested in Administrative, Industrial
& Social Health Problems

Editors ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., and JOHN A. LAPP, LL.D.

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JUNE, 1919

Number 2

NOTES AND COMMENT

HEALTH AND RECONSTRUCTION

PROGRAMS of reconstruction which have been issued by the various organizations other than health and medical societies give scant attention to the subject of health in social and industrial reconstruction. This is a strange omission when we consider the importance which has been attached to health as an element in the nation's efficiency in war and the interest which has been developed in carrying forward programs of health into peace times.

The program of reconstruction of the Chamber of Commerce of the United States adopted at Atlantic City in December, 1918, did not even mention health as an element in industrial management or industrial efficiency. The statement of principles of industrial relations submitted for consideration to the membership of the organization in April, 1919, does not touch in any way upon the subject. The nearest approach is contained in the statement that "industrial enterprise as a source of livelihood for both employer and employee should be so conducted that due consideration is given to the situation of all persons dependent upon it." This statement might be stretched to cover provision for industrial health service.

Strangely enough, the program of the American Federation of Labor does not deal with the subject of health of workers except in so far as that subject is included under the general betterment provisions for shorter hours and better wages.

The program of social reconstruction issued by the National Catholic War Council is one which gives important recognition to health as an ele-

ment in reconstruction. Besides discussing the relationship of wages, housing, and cost of living to decent standards of life, the following express declaration is made:

"The establishment and maintenance of municipal health inspection in all schools, public and private, is now pretty generally recognized as of great importance and benefit. Municipal clinics where the poorer classes could obtain the advantage of medical treatment by specialists at a reasonable cost would likewise seem to have become a necessity. A vast amount of unnecessary sickness and suffering exists among the poor and the lower middle classes because they cannot afford the advantages of any other treatment except that provided by the general practitioner. The service of these clinics should be given gratis only to those who cannot afford to pay."

In addition, the Council also declares for insurance against illness, invalidity, unemployment, and old age as a substitute for the time being until wages shall have reached a point "high enough to make possible that amount of saving which is necessary to protect the worker and his family against sickness, accident, invalidity, and old age."

There is, of course, due recognition given in programs and announcements of social service organizations, and health and medical societies of the necessity for the expansion of all types of health service. The figures of the draft, showing that large numbers were totally incapacitated for any service and, as stated by Major General Leonard Wood in this issue of MODERN MEDICINE, that fully 50 per cent of the youth of the country were unable to stand field service, have aroused the

country to the need of very definite and specific action to provide against such a contingency in the future. Statistics showing that from 50 to 75 per cent of all school children have some defect which is curable have given proper emphasis to the need of infant welfare work, pre-school health work, and adequate supervision of the health of children in all schools. Legislation is pending in Congress for Federal assistance to physical education and other types of health service, including medical examination and supervision of school children. These recommendations contrast sharply with the failure of groups outside the direct field of health and social service to speak clearly and explicitly in favor of an adequate health system as a part of the program of national reconstruction.

MEDICAL SERVICE UNDER WORKMEN'S COMPENSATION

THE state of North Dakota, the thirty-ninth state to adopt a Workmen's Compensation Act, declares as a fundamental principle that it is "the intent of this act to restore to industry those injured in the course of employment. The bureau shall accordingly assist industrial cripples to obtain appropriate training, education, and employment, and may cooperate with the Federal Board of Vocational Education for this purpose." This declaration follows the provision that "immediately after an injury sustained by an employee, and during the resulting period of disability, the North Dakota Workmen's Compensation Fund shall furnish to such employee such medical, surgical, and hospital service and supplies as the nature of the injury may require."

These provisions are in marked contrast with the laws of a number of states. Of the thirty-eight states and three territories which previously have had workmen's compensation laws, four states give no medical benefits whatever; nine states give medical care for fourteen days; three states give medical care for three weeks; six states which have a time limit have also a money limit ranging from \$25.00 to \$200.00.

The most liberal provision is that found in the United States compensation law which provides for reasonable medical, surgical, and hospital service and supplies, without limit as to time or amount and, if necessary, transportation of injured employee to place where he can be properly treated. This is in marked contrast with a law such as that of Pennsylvania which provides for reasonable medical and hospital expenses for fourteen days, but not to exceed \$25.00 unless a major operation is necessary, when the amount is limited to \$75.00.

It is fortunate that the practical point of view is coming to prevail in this matter, and that medical care is being recognized more and more in the new compensation laws and is being extended in amendments to old laws. Employers are at last recognizing that it pays to restore men by means of the best medical care rather than to pay compensation during long terms of disability.

The treatment of every minor accident has been found to be profitable. It costs little and may save hundreds of dollars compensation by preventing infection.

The importance of medical service was well set forth by Oliver J. Fay, M.D., of Des Moines, Ia., in the *Journal of the Iowa State Medical Society*. Dr. Fay said:

"The limitation of the liability of the employer for medical, surgical, and hospital service is a weak link in the compensation service from whatever angle considered, whether the limitation be to a given sum, as in Iowa, or a period of thirty, sixty, or ninety days as in some other states. A large majority of injuries are minor injuries in which the liability of the employer is limited by the character of the injury to less than the minimum established by law. Any case which is not so limited is of so serious a nature that not only the interests of the employee, and even those of the employer, but also those of the commonwealth are jeopardized by any such limitation.

"One of the basic lessons of the present war has been that no system of pensions, however generous, is adequate. No medical care which stops short of restoration to the greatest possible usefulness is satisfactory where our injured soldiers are concerned, and what is true of our National army is equally true of our great industrial army, whose casualty list is not limited by the duration of the war, but must continue as long as the wheels of industry turn. This may be social medicine, but certainly it is the only measure acceptable to our vaunted American efficiency. The vital issue in industrial medicine cannot remain the determination of the percentage of compensation to be given for a given injury to the hand; it must stop short of nothing less than the restoration of that hand to the greatest degree of usefulness possible, and compensation when given will then be based upon the functional and not upon the anatomical loss. Society, which reaps a harvest of some thousand dollars from the industrial life of each laboring man, cannot long countenance the wasteful system of annually allowing a considerable number of her laborers to be made mendicants by the operation of faulty compensation laws.

"From the lessons which we are now learning

from this great war, it is estimated that six months is the average time required for industrial reconstruction and rehabilitation of the man with a major injury. It may be argued that so long a stay under the necessarily expensive roof of a reconstruction hospital would be too heavy an expense for our insurance companies, and, ultimately, the employer. We are not primarily concerned with the return of a given dividend to any insurance company, and, since it is the State which is most vitally interested in rehabilitation of the injured workingman, it is the State which must take over the problem when the employer fails of its solution. There is at this time a bill before Congress providing for the rehabilitation of the injured in the industrial army of this country, the expense of such reconstruction work to be shared equally by the Federal and the State governments. This work would call for men with special training and qualifications; and an army of medical men are now receiving this special training in the great school of war. When their task of returning the maimed soldier to a life of useful activity is completed, the great industrial army may well claim their services."

The future development of compensation laws almost certainly will be in the direction of physical and vocational rehabilitation. The primary interest which society takes in compensation is the restoration of men to working capacity equal, as nearly as possible, to that which they enjoyed before the accident occurred. Physicians and educators must cooperate to restore men to working capacity in gainful occupations and thereby salvage as much of human power as possible.

THE SEVERITY OF SICKNESS

NUMEROUS studies have been made during the past year to determine the extent of sickness among the workers and the general population. There are summarized in this issue studies showing that about 20 per cent of the workers suffer a disabling sickness each year lasting more than seven days. Approximately 6,000,000 workers are, therefore, annually, disabled. The average length of each disability is about 35 days. Of the 6,000,000 who are sick, it appears from the comprehensive data of the surveys that 65 per cent, or 3,900,000, are sick for less than four weeks; 19.7 per cent, or 1,182,000, are sick from four to eight weeks; 6 per cent, or 360,000, are sick from eight to twelve weeks; 3 per cent, or 180,000, are sick for more than six months; and 1.3 per cent, or 78,000, are sick for more than a year.

These figures do not take account of the chronically sick, and the defectives. They relate

to employed persons who are working at the beginning of the year. If we add those who have been sick for more than a year, we find that probably a quarter of a million people are completely incapacitated at all times. On the average there are also 700,000, or nearly 2.5 per cent of all workers, who are suffering from a disabling sickness every working day, while another half of one per cent are away from work each day on account of trivial disabilities.

The losses to the men who are sick are very serious, especially when the disability extends beyond thirty days. A large part of those who are sick for long periods are driven to economic distress or dependency. The losses resulting to society appear in their true seriousness in a time of stress such as the emergency caused by the war needs for production. The number of ships that could be built, or the number of tons of coal that could be mined with the 300,000,000 days of labor which is now lost, can be readily determined. The saving of merely 25 per cent of the loss would bulk large in the wealth of the nation.

THE RETURNING DOCTOR

THREE is much speculation as to the changes in practice of medicine as a result of war service. Will the doctors go back to general practice? Will they lean toward public health activities? Will they desire rather to take up preventive work in factories and schools than to resume general or special practice? Has state medicine been promoted by the employment of large numbers of physicians on salaries in the public service?

These are some of the questions which are being asked. They are all receiving affirmative answers by the results of demobilization, to date. What the final tendency will be cannot be clearly observed for some time. That there will be changes is certain. Probably one of those changes, particularly in rural districts, will be in the direction of group practice.

The army doctors have been practising group medicine for two years. They have been doing team work. Specialists were available for every case which needed their services as a part of the regular routine. Diagnosis was made by cooperation among as many doctors as were necessary to make it complete. There was very little individual work. The men worked rather in teams. Preventive medicine was practised on a large scale and all of the doctors took part in it. There were hospitals to take care of the disabled, but the main object was to keep the men well and physically fit.

Many doctors undoubtedly received a new view of the practice of medicine, and many un-

doubtedly lost their desire for individualistic practice. They will, when they go back to their former fields of activity, desire to work more in teams and to have better facilities than heretofore. The rural doctor particularly will desire to have some type of group practice with facilities to take care of the sick in the rural regions. Army practice has shown the way for the development of group diagnosis and treatment, and the physicians who have worked long enough in the army to get the new point of view will not be satisfied to practise medicine, in the country, at least, without having within reach more complete diagnostic facilities and accessible provision for the care of the sick, together with means of transportation. Experiments in the extension of medical service into rural districts through rural hospitals, as in Canada and in some parts of this country, have pointed the way for an enlarged development which the experience of the returning doctors will make easier of accomplishment.

TO MAKE HEALTH INFORMATION FUNCTION

MEDICAL science laboriously compiles its pages of data and knowledge. The librarian takes the works of each individual in books and magazines, and puts them on the library shelves. There the information remains, untouched and unused, too often. There is an abundant harvest of health information every season. But the vast bulk of published matter does not serve the medical profession or the public in the fullest measure, because it is so often put in storage even while the ink is wet on the pages.

Science has been prolific in discovering preventive methods for the control and destruction of disease, and men of science have been painstaking in publishing the facts. Resting on the shelves of libraries there is sufficient knowledge of medical science to reduce materially the death rate and prevent the ravages of disease. Yet only a part of the results of research has been made to function for the public welfare. The problem now is the call of duty in translating this accrued information into action. The responsibility of collecting and interpreting data of health to the people, and expressing it to them in their own manner of speech, rests upon the physician. The exercise of this responsibility of the physician is important because there must be wise separation of quackery from science.

In performing this duty the medical profession encounters two difficulties. It must keep in touch with the progress of medical science and it must

be expert in publicity. It must gather the facts and it must sell the product—health—to the public. Neither of these difficulties can be overcome except by organization. No single physician can hope to keep abreast of all phases of medical progress. A dozen physicians could scarcely do that except by devoting more time than can be spared from active practice. But a body of specialists, organized with research facilities in medical literature, which sifts the current scientific publications and delves into the old ones, could mobilize efficiently all that is essential of the world's knowledge of medicine. Public health departments equipped with such facilities could succeed in mobilizing health knowledge and experience for the benefit alike of doctors and laymen.

The next problem is to make the knowledge so mobilized work effectively in the treatment of disease and the preservation of health. Stores of medical knowledge do little good in libraries, or even in the heads of men, if patients are not cured or protected by it. Science pursues its discoveries not to accumulate knowledge but to promote welfare. Physicians acquire and accumulate medical knowledge solely for use in aid of men. Public health officers are engaged with the physician in the attempt to put medical science into practice. Success in selling the knowledge of health will be a powerful stimulus to the physicians in accumulation and to the scientists in discovery.

Students and masters of the science of medicine and therapeutics address their written discussions and observations to one another—seldom to the layman. The usual book or article on medical topics is written for medical men and read by medical men. How readily it is possible to translate this same information and knowledge into language adapted to popular tastes in reading is well illustrated in the departments of certain large newspapers in cities like New York, Chicago, Philadelphia, and Boston, in which health questions are discussed by physicians, who edit and write the departments for the layman.

These columns of health news are read by thousands daily. They furnish an excellent example of the educational possibilities of the press. More literature on medical subjects in the style designed for lay readers is needed. There could be no more opportune time than the present period of social and industrial reconstruction for instituting a widely organized campaign for health. A splendid opportunity offers itself. New groups should be formed in the medical profession, coördinate with those now existing, and new channels opened up for extending the benefits of medical science into all corners of the land.

PHYSICAL EDUCATION AND NATIONAL GROWTH

BY LEONARD WOOD, M.D., MAJOR GENERAL, UNITED STATES ARMY

THE physical condition of the young manhood of the nation, as brought to our attention by the draft, is cause for great anxiety. Roughly speaking, 70 per cent of the men who were of military age and who were examined by the draft boards for military service were sent forward to the training camps for induction into the service, and 30 per cent were rejected as unfit. This was after all the exemptions had been made for family, business, and other reasons.

Of the 70 per cent who were sent to the training camps, 8 per cent were rejected as unfit for military service, and this under standards as to physical requirements which were much lower than those in effect in the Regular Army in time of peace; that is to say, men were taken with minor defects which would cause their rejection by the Regular Army under peace time requirements.

Many of the physical defects were of a character which could have been easily corrected in early youth through proper training and exercise. Others could have been very much benefited. Flat chests, spinal curvatures and deformities, flat feet, wretched muscular development, defective teeth, slow coordination of mind and muscle were common. And this among the 70 per cent who were sent to us as presumably fit for service. What the condition of the remaining 30 per cent was can readily be imagined.

Again, many men were exempted as obviously physically unfit, and were not brought before the boards for physical examination. It is safe to say that 50 per cent of our men were unfit for field service in war. This is bad enough from the military standpoint, but it is even more serious from the standpoint of industrial efficiency.

Among the men from the South there was a very large proportion of men with hookworm, with its attendant anemia and sluggishness of mind and muscle. Indeed, the entire situation was one which indicated the need of much broader and deeper interest on the part of the State in

WHAT THE DRAFT HAS TAUGHT

We must wake up and pay much more attention to the physical and moral development of the youth of the country.

We are losing a large portion of our men from a standpoint of military efficiency by physical defects that could be corrected in early youth by proper training.

We are subjected to enormous wastage from the standpoint of economic and industrial efficiency.

These are losses which the Nation can ill afford, in view of the coming contest for industrial supremacy.

point. Carelessness brought out very forcibly the necessity of more careful teaching in matters that have to do with personal hygiene.

Certainly these facts indicate very clearly that we must wake up and pay much more attention to the physical and moral development of the youth of the country; that we are losing a large portion of our men from a standpoint of military efficiency, and are subjected to enormous wastage from the standpoint of economic and industrial efficiency. These are losses which the Nation can ill afford, in view of the coming contest for industrial supremacy.

Then again, if we want sound children we must have sound parents. To insure this end much more thorough and intelligent methods are required in the education of our youth. Much has been done. Much more must be done.

We must have thorough and careful physical supervision of our children in the schools, beginning with early youth. We must carry this work through systematically. It is of vital importance to the nation. With the physical training must go careful moral training.

Another powerful agency in correcting existing physical defects will be found in universal training for national service. This training will include rigid physical supervision and intelligent effort to build up poor physiques and to correct physical deficiencies. This, however, will only reach the boys and young men. Our physical training must be broad enough to reach the girls and young women of the land.

the welfare of its youth, the establishment of measures looking to the building up of physical training and general sanitary supervision in public schools and in all places where the youth come under the supervision and control of the State. There was also a large percentage of vice diseases, indicating the importance of emphasizing the dangers to which youth is subjected, and the need of more thorough instruction on this

concerning the person

GROUP MEDICINE

BY A. J. BARKER SAVAGE, M.D., SUPERINTENDENT BROAD STREET HOSPITAL, NEW YORK CITY; CONSULTING SUPERINTENDENT, NEW YORK MEDICAL COLLEGE AND HOSPITAL FOR WOMEN, NEW YORK, AND THE HARBOR HOSPITAL, BROOKLYN, N. Y.

THREE is but little special literature on the subject of group medicine because of its relative newness. Cooperation in medical practice is by no means new, and group medicine, if we regard the Mayo institute as an example, is no longer novel. As a matter of fact, as we shall develop later, the term to-day really implies the result of a movement begun on the Pacific slope as recently as 1915.¹ This is, of course,

another way of saying that the term "group medicine" may be understood in several different ways, which will be elucidated later. From the California point of view, group medicine had a very simple origin. Information had slowly accumulated that in all general hospitals many avoidable diagnostic blunders were continually made, and group medicine was intended to prevent this catastrophic state of affairs. Group medicine was essentially group diagnosis. In the Mayo institute, one internist makes the diagnosis and refers the patient to the operating specialist, a method which is neither group diagnosis nor group treatment. The same procedure is seen in any dispensary when the clinical clerk, after looking over a patient, refers him to the proper class. This entire matter will be threshed out in full.

Some authorities see in group practice of any sort the natural tendency of an art like medicine, once split up

THE PRICE OF DIVIDED EFFORT

The sharply defined division of the several fields of public health endeavor has been open to serious objection.

The separation results in over-lapping efforts in some directions, while other phases of health work get scant attention.

In consequence of effort duplicated, the expense for administration of health activities is increased proportionately.

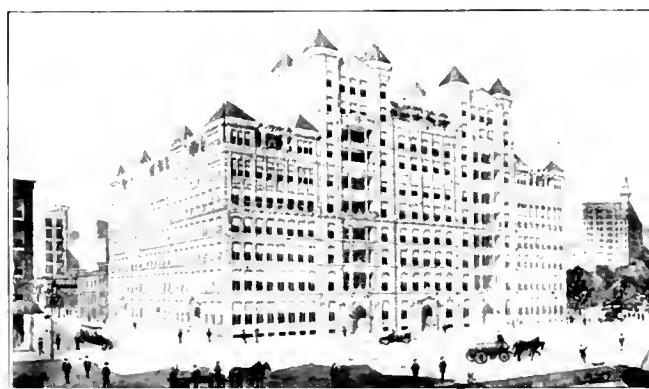
To promote real efficiency there is needed a practicable method for coordinating the work of health and social agencies.

into independent specialties, to undergo integration by cooperation of the disunited forces. All has depended on the creation of technical subdivisions of practice and of the attitude, finally reached by the profession as a whole, that specialism, in so far as it connotes great technical skill in diagnosis and treatment, is not commercial and charlatan but legitimate and indispensable. We have said that there is little

literature of group medicine. Let us first define this term as we understand it. First, however, it will be necessary to outline the condition of affairs when group practice of medicine is altogether absent.

If an internist examines a private patient and finds no organic affection but a highly developed nervousness and suggestibility, he will be very willing to transfer the patient to a neurologist. The latter in turn may find reason to believe that

the nervous symptoms are at bottom dependent on some slight structural anomaly in some portion of the body. Perhaps he will think the mischief is of urogenital origin. In any case, treatment directed against such mischief may have a suggestive value. It has recently been learned that much invalidism and imitation of disease can be traced to stricture of the ureter. A score of similar possibilities exist where trivial lesions in quite different parts of the body

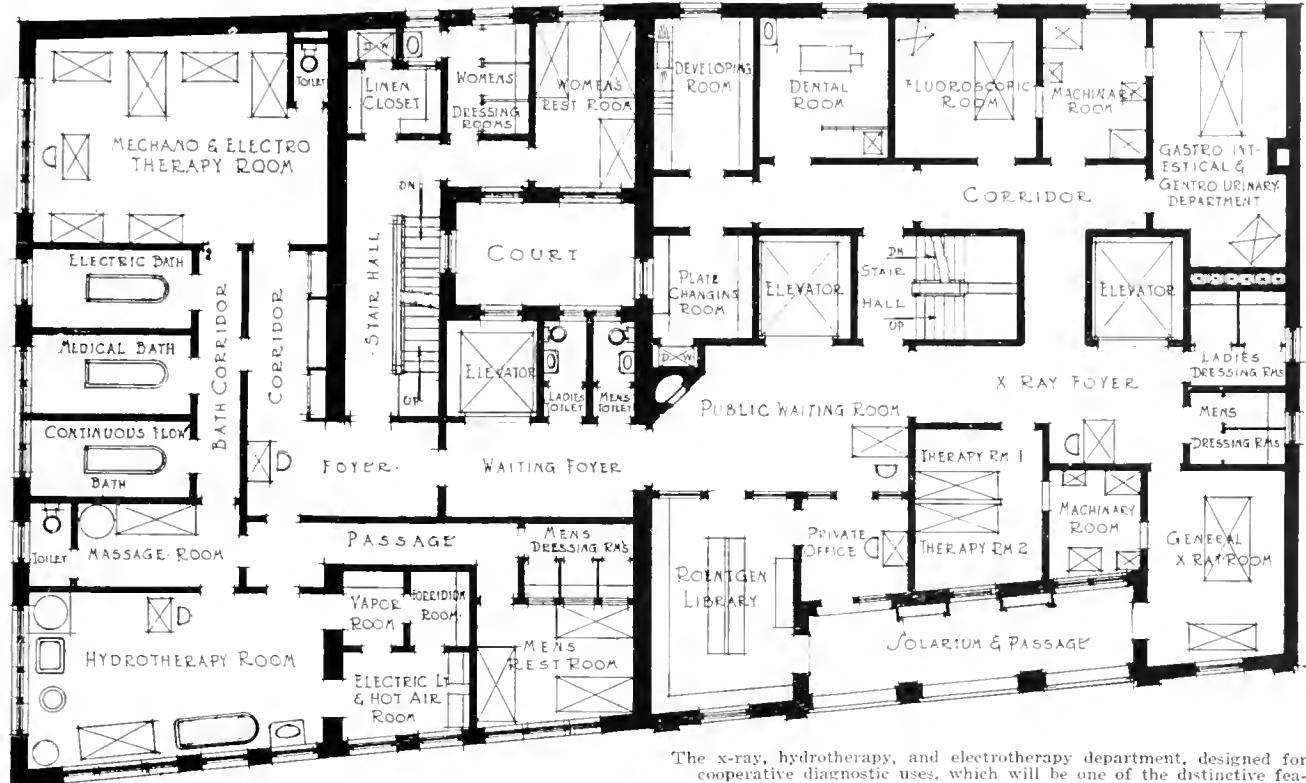


The Broad Street Hospital, New York City, overlooking the waterfront, as it will appear upon completion of the new wings to the present building. Its frontage permits of an outlook over the towns that lie on the opposite shores of the North and Hudson Rivers, and a view of the Statue of Liberty. It is here that a plan of cooperative, interdepartmental medicine is being developed. Owing to the proximity of the hospital to the waterfront, numbers of seamen and nondescripts come to the institution, some of them suffering from rare diseases and conditions contracted in distant localities. It is proposed to combine the examining and diagnostic facilities with the therapeutic functions of the hospital so that a patient who requires special examinations can be brought to the hospital and for one, fixed, moderate fee have the expert services of all of the specialists, and, after consultation, be given the best conjoined advice as to treatment.

render men and women invalids, and only as a result of a complete diagnostic examination can this mischief be found and corrected. When found, it may have to do with an anomaly of refraction or badly fitting glasses, with an infection of a nasal sinus, or with an infected tooth-root, and so on throughout the whole organism.

and practicability of a non-institutional federation of private practitioners acting as a diagnostic and therapeutic group. This movement we believe to be quite out of consideration in this connection. We may refer to it later.

If, however, there is little literature directly bearing on our subject, we are automatically re-



The x-ray, hydrotherapy, and electrotherapy department, designed for cooperative diagnostic uses, which will be one of the distinctive features of the proposed additions to the Broad Street Hospital, New York City. (William Neal Smith, architect.)

Proper Treatment Begun at Once

Traveling from one specialist to another entails much waste of time—for probably every practitioner consulted will reach his conclusion only after his own remedies have failed entirely—and necessary expense in fees, drug bills, and perhaps trips to health resorts and expensive apparatus. Could the patient be examined by a number of competent men at one or a few sessions, a diagnosis could often be made at once and the proper treatment instituted. The expense, whatever it might be, would be only a fraction of what it often is.

Group medicine is therefore an economic feature of medical practice intended primarily to benefit the patient; and incidentally to raise the status of the medical profession by making it immune to the frequent charge that people are sent from one specialist to another until their funds are exhausted.

In stating that as yet this subject has little literature, we pass over the fact that considerable has been written concerning the possibility

minded of the Mayos whenever it is mentioned. Most practitioners would call this institute the one supreme example of group practice. In a sense this may be the truth, but there are important distinctions to be made.

Personnel of the Mayo Group

One thinks of a group federation as a democratic association on purely equal terms of men of equal age, prestige, and capacity. The Mayo brothers, however, do not conduct their establishment on any such lines. They are purely autocratic and their group men have been as far as possible kinsmen and protégés who have taken training for special practice. The policy of commercial houses has been followed in this respect, and the group men resemble heads of departments. Able and skillful as they are in their special fields, they are not wholly responsible in their own persons, nor can they compare either in income or prestige with the independent practitioners in their own fields. One could easily conjure up in imagination a group of these men

working together who might even surpass the fine work of the Mayos or the excellent accomplishment of the great hospitals of Chicago.

There are, however, some advantages about an autoeratic establishment, for in matters of diagnosis there must be someone to stand for the final and complete diagnostic expression of the disease and some master mind at times to set the course of treatment.

From quite another aspect, the Mayo establishment may be lacking in an essential of group treatment, to wit: it is purely a surgical institute. The advantages here are quite obvious although they are not such as to exclude absolutely medical cases. The central thing about a surgical institution is the operation, which alone justifies the large fees paid. Every patient visits the hospital for a possible operation. If the case is inoperable he goes home, and if operable, he goes home after convalescence. Thus there is a complete and rapid rotation of cases throughout. Yet a complete system of group treatment should include medical cases as well, limited naturally to acute and subacute affections. The chronic ease belongs, of course, to the sanatorium. The victims of acute disease usually need to be under surgical supervision from the start.

For instance, take the example of a lady with typhoid in one of our leading hospitals. The visiting physician overlooked completely a beginning infection of a rib, and the patient was sent home in a condition which was followed by long invalidism and an operation of severe character. Even a cursory examination by the visiting surgeon would have disclosed the complication. In hospital practice it is the custom to wait for developments and then transfer to the surgical service, but far better is a surgical control from the start. Many a patient controlled from all angles would leave the hospital cured who now leaves partly cured, to return later. There are now so many borderline diseases of both medical and surgical character that it is difficult to understand how they are in one service to the exclusion of the other.

Group Practice Differs From Dispensary Plan

While the expression "group medicine" and "teamwork" are new enough, the claim might be made that the practice is by no means new. Does not a large outdoor department of a hospital or a special dispensary like those which have flourished for years embody the same idea? The resemblance here is purely illusional. A number of specialists are indeed gathered in one building at the same time, and cases are made the subject of consultations, but the vast amount of the work is

individual; the different men serve on certain days only, the makeup of the men is constantly changing from day to day, the equipment is scanty, different specialists share the same rooms on different days, only a little time can be devoted to the individual ease, and the patients as a rule present the same monotony of symptoms so that really interesting and obscure cases are rare. When a patient is transferred from one class to another, it is often rather to be rid of him than to give him the benefit of a consultation. The prime end of dispensary practice seems to be to satisfy the patient with a prescription or application to relieve some symptom, or to do a great amount of good to the community as a whole with the smallest outlay of time and expense. It is very unlikely that group practice would ever have evolved on a dispensary basis. The better and more complete the service, the greater the number of patients with purely routine maladies which call for stereotyped treatment. When an obscure case does appear, the patient will probably receive some attention; he may go before a medical society of experts as an exhibit and so in time secure the benefits of group diagnosis. These medical society cases naturally only go before one class of experts at first but they may be referred to others and so on until the mystery which they present is solved.

Abuses in Transfer of Cases

The subject of a sort of tandem teamwork among private practitioners has received considerable attention as a custom to benefit the patient. As we understand it, it has been tried to some extent and condemned as inefficient and impracticable. The custom of passing a patient along could itself be made the subject of a paper. The motives vary much. One practitioner may be under obligations to throw work to a relative, a protégé, or the son of an old colleague. Many specialists will frankly admit that their success was due to the powerful support of a few friends at the outset. General practitioners have their favorite specialists for consultation. A much more ample motivation is seen in the cooperation of the specialists of a medical college. To secure a professorship in such an institution usually means the loyal support of the colleagues. Even if a man is personally unpopular with his colleagues, they will hardly refuse some recognition. In the absence of college affiliations, hospital affiliations serve the same purpose. The continuous transfer of cases, however, is not in the interest of the patient or his pocketbook. In fact, it has formed a sort of abuse which group medicine has to correct.

The transfer of cases among practitioners, gen-

eral and special, is often of quite a different type. For one or another reason, the patient has become a burden to his doctor who gets rid of him by sending him to a colleague, who will very likely find that the man's funds have given out or that he is a hypochondriac nuisance or pest. Needless to say, the practitioner does not send such cases to his cronies without a private explanation. Instead he may send them to strangers or colleagues whom he secretly dislikes. Would-be specialists may be made the butt of grim jokes, as when a case of corns or bunions is referred to an orthopedist.

Public Exaggerates the Faults

The public is quite aware of the abuses of the transfer system and is inclined to exaggerate them and to doubt men who are really acting in the best of faith for the patient's own interest. Although patients are so often referred to colleagues, it is safe to state that in a majority of cases they do not go at all or do not go until time has elapsed. In a tandem method of cooperation or teamwork, the objection which would first be apparent is the contrariness of the patient about being transferred. It would mean delay in the waiting room and time spent in transit. Often a sort of innate repugnance makes the invention of excuses easy. It is possible that the custom of erecting special buildings for physicians has been favorable for the transfer of cases between colleagues, but, so far as we know, no teamwork activities have been developed on this basis.

Group medicine naturally suggests the hospital as the only practicable place for teamwork, and, as we shall show later, legitimate and unobjectionable teamwork first began and first made good in hospitals. On paper most large hospitals have for many years possessed consulting staffs, but, in most instances, these are seldom called upon—perhaps a few times annually to justify the appointment. But when even the visiting physicians and surgeons show such feeble cooperation, we cannot expect to see any feeble beginnings of group medicine under the old regime. Physicians and surgeons are often rivals in the great field of borderline cases; each class claims them and each accuses the other should the case end badly. Instead of neutral wards with both physicians and surgeons in daily consultation, we find the borderland case in full charge of one man who has absolute control of the case and sole right to summon counsel.

A particularly disagreeable feature of modern hospital activities shows at once the need of teamwork and of reform in hospital administration. We refer to the custom of charging a patient with-

out his knowledge or consent with extra fees for x-rays and laboratory work. The patient is usually poor and has raised all he could obtain for the known charges for ward treatment. The items for special service are charged at full rates and the bill is thrust upon the patient while he is still under treatment. In vain he states that his consent was not obtained for his \$25.00 x-ray fee and his \$5.00 blood and urine analysis. He is abused verbally and given the impression that he cannot leave the building until these extras are paid for. These threats are only verbal and apparently never carried out. Doubtless the policy is pursued only with those suspected of having misrepresented their finances. However, many worthy poor have been inexpressibly shocked and worried by these bills and at a time when ill prepared for such treatment. They are told at their discharge that the amount will stand in their name on the hospital books, and this custom is a cause of renewed complaint. Doubtless these bills are often compromised at a low figure. The only answer ever made in defense of these customs is the ever-present need of money without which the hospital would have to cease its good work altogether. The high-handed and arbitrary procedures doubtless help mightily to cut down the annual budget, and, if exposed, would at least stimulate increased contributions from the well-to-do philanthropists.

Why Group Treatment Must Come

The very existence of such customs shows the need of an institution for the practice of group medicine. The patients cannot be tested intelligently without group practice, yet mere passing the hat will not raise money sufficient for such luxuries. In order that the poor may benefit, these institutions should be well endowed at the start. A hospital for merely wealthy subjects would doubtless fail for reasons mentioned later.

In connection with group work, two or three quite different forms of activity have been foreshadowed. One is purely diagnostic in scope. A diagnostic hospital already exists in New York and a building will be erected at an early date to be known as the "Diagnostic Institute." The term "hospital" is really a misnomer, as no treatment will be undertaken. On the Pacific coast groups are active in work which is essentially diagnostic and which yet lays down the treatment indicated by the diagnosis. These clinics will be described in full later. A third form of activity is, primarily, treatment. At the Mayo institute, the Massachusetts General Hospital, and the Cook County Hospital of Chicago, we understand that group diagnosis in the California sense does not exist.

One internist makes a full examination and refers the patient to the proper clinic or clinics for treatment. The group men in California are satisfied that this is a grave error and refuse to apply the term "group medicine" to any of these famous centers of medical or surgical activity.

Who are the natural, the superior diagnosticians? The beginner who can spend many hours daily in some narrow field of activity may be the technical superior, especially if endowed with unusually keen senses or color perception. His responsibility is limited to seeing or hearing, and in hospital work his skill is often used by his seniors. With the final diagnosis or with treatments he will have no concern. It might be worth while for group ends to fit some of these men for group work. They will have no outside activities, and their compensation need not be high. In other words their status would be that of laboratory men. They might combine several diagnostic activities. Would not a good ophthalmoscopist make a good uroscopist as well? Men of this type could always be on hand, and the labors of the diagnostic staff would be curtailed.

How Diagnostician Acquires Skill

An ophthalmoscopist is a necessity to the neurologist, brain surgeon, syphilographer, and internist. Certainly in all obscure cases his services would be needed. As already stated or implied, a single individual might take up the entire subject of endoscopy, for the faculty of examining illuminated cavities with their color shades must be a general one of wide applicability.

Diagnosis, however, is much more than endoscopy, for we have heard gynecologists state that a year or year and a half must elapse before one can really understand the exact relations of the pelvic viscera; and about the same latent interval elapses in all special work before one really becomes confident of his diagnosis. As a rule, a man really learns diagnosis from prolonged and close association with an expert. Hence both self-teaching by personal experience and education through the experience of others should be utilized in group work. An unknown man who has been closely associated with an expert may be better for group work than the expert himself.

It happens automatically, however, that the man who is to treat the case is the one to have the last word in diagnosis because his treatment, whether for a single consultation or more, must be based on a diagnosis in which he concurs. Hence the make-up of the group may vary much with its aim, whether for diagnosis or full treatment. In the former case, much work could be given to

diagnostic technicians, but in a therapeutic group the same man must combine diagnostic with manipulatory skill. A diagnostic cystoscopist would have to be an accomplished operating cystoscopist as well. Apparently the same x-ray man would be used for diagnosis and treatment. The subject of electrocardiograph would belong under laboratory activities, as would perhaps the measurements of blood pressure.

A full diagnostic-therapeutic group is not altogether easy to visualize because of possible opposition in many quarters. Should it revolutionize medical practice, should all practitioners engage in group activities, all might be well in the end. Otherwise group medicine might antagonize family practitioners, specialists, and hospitals to a greater or less extent. According to the California idea, group medicine exists only through the good will of the family physician who regards it as identical with a consultation with a single consultant. The consultants and specialists in general are not strikingly antagonized as long as group medicine is for the benefit of the small-salaried man. Do not consultants and specialists admit among themselves that they could not thrive were it not for the patronage of the well-to-do?

We note under the head of surgery two opposing tendencies. On the one hand, there is a tendency for certain men to achieve prominence in certain fields, some quite narrow; one man does most of the brain surgery in a community while another has an imposing series of cases of operations on cancer of the rectum; a few men only do thoracic surgery with pressure-difference apparatus. The other or opposed tendency is for many men to enter a field as soon as it has been shown to possess possibilities. No technical difficulties appall them.

Difficulties of Group Diagnosis

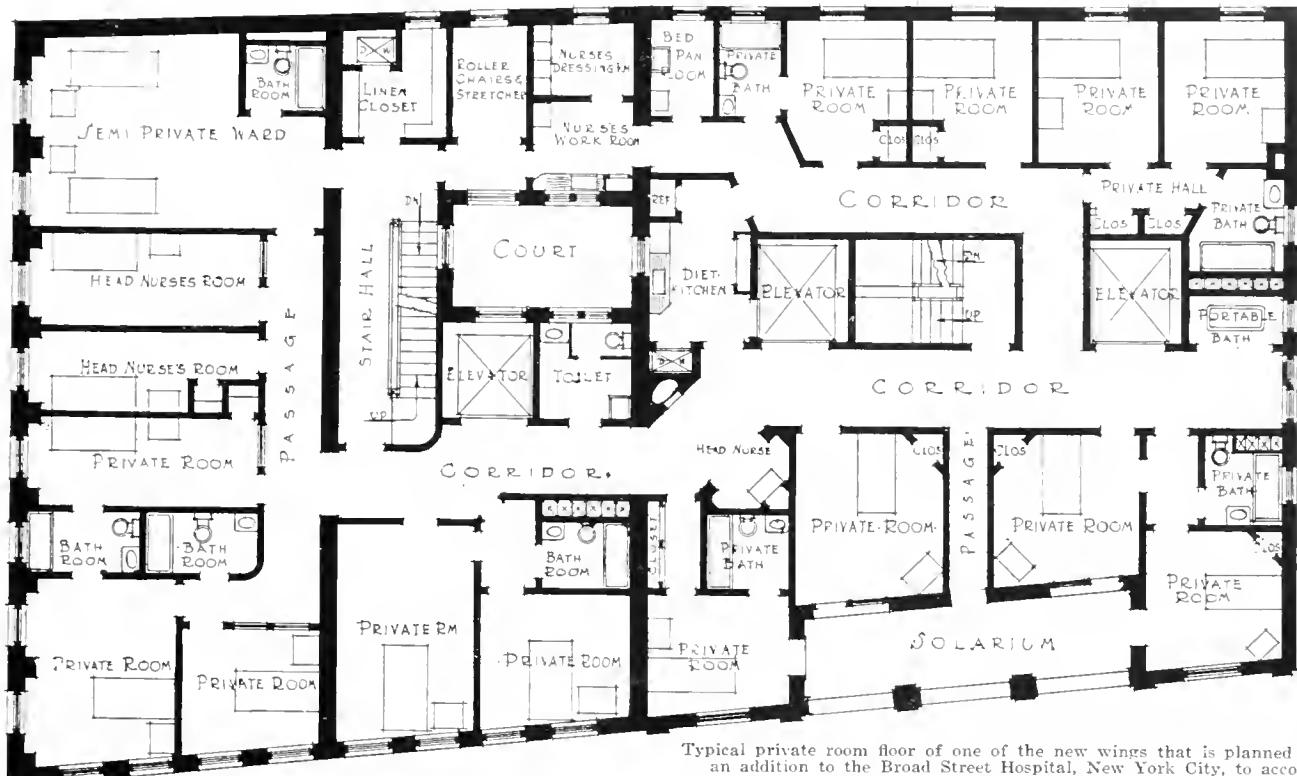
How will these tendencies affect group practice? A man with great prestige would not be likely to pool his issues with a group of less known men. On the other hand, a group would need the services of an expert in no wise inferior to the man of prestige. This could not always be obtained at once. The operating bronchoscopists frankly admit without the least jealousy that one of their number is technically their superior. They are rather proud of him and shine from his reflected light.

It will be remembered that one operator obtained a good start on the electrical destruction of bladder growths; after he had abundantly shown the practicability and utility of the method, a score of colleagues overcame the technical difficul-

ties, and now no urologist would refuse to master the procedures involved. Group medicine would encourage emulation because each group must have a man as good or nearly as good as the best outside talent. The success of the younger special surgeons in the Mayo Clinic has been due to hard work, study, abundant opportunities, and the stimulus of the ambition to compete with the best

yet hardly goes so far, because the latter is usually called in late while in a group diagnosis the aim is to have an early diagnosis.

Another question is now raised. Can an ordinary metropolitan hospital intended for emergency and routine work become an institute for group medical practice and still retain its original scope of activity? This question should be an-



Typical private room floor of one of the new wings that is planned as an addition to the Broad Street Hospital, New York City, to accommodate the broadened activities which are made possible by the co-operative, inter-departmental system of group treatment. (William Neal Smith, architect.)

independent men. Group medicine can pattern after them. If men are not available, they must be created; in the case of endowments money could be appropriated for training men in various ways. They could sojourn at special educational centers; at the Mayo institution, for instance, at the urological clinic at Baltimore, or, in fact, wherever the highest technical training is obtainable, anywhere in the world. At a urological institute in Madrid, students study cystoscopy on the cadaver and healthy living subject and use a variety of instruments, in addition to abundant clinical material. The many ways for obtaining special training are too well known to require details. A year or two as assistant to an expert is perhaps the best single way.

Many phases of practice would be in no wise disturbed by the advent of group medicine in a community as long as the latter had limitations of marked character. This is especially true if functions are diagnostic. It then simply replaces the old consultant in a certain number of cases,

swered at once in the affirmative. In any general hospital there are presumably accident and emergency wards, and the operation of the latter need not in any way prejudice the other work of the hospital. Accident cases are the very ones to benefit by group practice, as in the instance of fracture of the skull where the surgeon, neurologist, and ophthalmoscopist are all simultaneously in demand. It is the man generally smashed up with all functions disturbed who can profit most from the services of a group of specialists. In a large city a hospital of this type could readily take on a certain ambulance territory, and the service rendered should be superior in character.

Another question refers to the policy of an outpatient department in a group hospital. The essentials of dispensary practice have already been outlined. It is evident that a number of reasons could be adduced against associating dispensary with group practice. The first is that it would be essentially slipshod and devoid of real cooperation. If used at all, it would have to be conducted

on lines in harmony with the hospital proper. Three-fourths of the patients would represent cases requiring no deliberate group activities. On the other hand, cases in which the latter were really in demand could perhaps be given the benefit of teamwork. That there should be an outpatient or ambulatory service of some sort is conceivable, especially if there are no other dispensary facilities in the district.

In group medicine the medical specialists would to a certain extent be handicapped along lines of treatment, since they have no equivalent to the decisive surgical operation. This is offset in part by the fact that the medical disease is self-limited in many cases, and to discharge a typhoid case in first-class shape may be a feat comparable to a successful operation with good convalescence. Of diseases not self-limited, medical treatment will put patients on their feet in many cases with relative recovery. The percentage of these cases, however, cannot begin to compare with the surgical recoveries. In our opinion this is due to the wrong conception of the duties and scope of physicians as opposed to surgeons. It is commonly said by those who begin medical practice that nine out of ten who flock to them are not really ill, i. e., have no demonstrable organic disease. But if the practitioner had made himself familiar with the mechanism of the soul, as the surgeon is with that of the body, he would never pronounce these nine patients technically sound. In other words, the great majority of patients in this class demand a psychotherapist. While physicians who have never received this training or who object to it for one motive or another, cannot be made to take it up (although all successful men practice it unconsciously), this omission should be remedied by having in any medical group a neurologist who is thoroughly versed in medico-psychology. If we suppose that ordinarily the internist looks over the patient first and perhaps directs the entire examination — since someone must exercise this prerogative—a little reflection will teach us that the psychologist should be entrusted with the initial examination. He should be able to detect under any disguise the neurasthenic, hysterical, "hypo," and simulator in general. He would be apt to estimate the personality of the man correctly and likewise any defect of intelligence. He would also know how to rate the man's testimony. This, however, is doubtless open to practical objections. In most cases a complete examination along such lines would be out of the question, but the psychologist should certainly be present during the examination and on subsequent occasions and give the patient a mental rating. This form of testing has nothing

in common with an ordinary neurological examination, which might or might not be carried out by the psychologist. If the same man exercised both functions, he could obtain an idea of the mental state while conducting the neurological examination. The presence of a neuropsychologist is also of value in many other ways in group practice, as in dream and delirium analysis. It is conceivable that, in a group hospital, neurological cases would not be desired on account of their chronicity, but there could be abundant work for a man of this specialty as already indicated. In any case the group hospital of a large city would not care to trespass on the domain of highly specialized hospitals such as those devoted to the eye, nervous system, orthopedics, etc.

Place for Specialism in the Group

It would perhaps come about that group surgery would subdivide in time into brain and cord surgery, chest surgery, etc. One of the most valued members of a group is the anesthetist who has long been a special technician. In this connection, the term "technician" might come in time to remove some of the old odium attached to the words "specialist" and "specialism" which originally almost connoted quackery. The modern anesthetist must understand all forms of analgesia and narcosis. Alongside the anesthetist should be placed the man responsible for the cleanliness of the surgical outfit, and the two could be combined.

The question will sooner or later crop out: "May not the same man cover different group activities in his own person?" This question is a most vital one. Not a few men are equally qualified in several quite different technics. This polyvalence should be utilized at the start in the formation of the group. Men could be chosen who are known to be proficient in several fields. There is certainly a precedent in this course in the average laboratory man who often does the work of half a dozen technicians. Under so elastic a term as "pathologist," one man may be the chief autopsy functionary, curator of the museum, microscopist, bacteriologist, hematologist, general chemical analyst, experimental pathologist, maker of serums, and so on through a dozen more activities. Yet at the other extreme, in some hospitals, there is one man delegated for the Wassermanns alone. Much depends, of course, on the outside activities, as the true laboratory man is engaged in no other kind of activity; in other cases one of a group who has little time to spare is entrusted with a narrow line of work. In group activities this is likely to be the case, and it will not be possible to standardize the time of the different men.

This leads to the entire subject of cooperation and compensation of the group practitioners. Should a man devote whole or part time to his group work? In the Mayo institution, so far as we know, no man has any outside activities. We do not know how the men are compensated, whether by salary or percentage, but presume the methods of financial houses are followed. Much has been written about various aspects of this institution, but naturally the bookkeeping system is not discussed. If salaries are paid they would certainly be much smaller than the incomes of eminent independent specialists because the men at the Mayo institution are at no expense for upkeep of office and armamentarium. A general library makes it unnecessary to buy books and periodicals. This community is one of the attractions of group medicine, or might be made such. In a group hospital conducted on a democratic plan in a large city, it is hardly conceivable that men who combine to form the federation could give their entire time to group work. As a rule they would be men with good practices with offices centrally situated and probably remote from the hospital. If his headquarters were to be at the hospital, each man would require a certain amount of private floor space, and the various major surgeons would not care to use a common installation; they could not, in fact, because they might have the same hours. There would have to be arrangements for privacy equal to those in a physicians' building. A question to come up would deal with the privilege of doing other than group practice.

How Will Public View the Group?

This opens up a new and large problem. All cases are certainly not group cases, and it might represent an economic waste to treat them as such. Perhaps almost any patient could benefit in some manner from group diagnosis and treatment, but the idea of the group is based on the conditions arising from the combination of complicated disease in men of moderate circumstance. The very wealthy man is not likely to seek group treatment to save money. The element of time-saving might or might not appeal to him. One of the most cherished privileges of one type of patient is to wander from one physician to another. Moreover, the group ideas may suggest too strongly the "consultation of specialists" of newspaper mention, which usually means that the patient is almost hopelessly ill. In fact, group medicine being in the experimental stage, no one knows just how the public will react to it. No one goes to the Mayos' institution primarily for group treatment. People know of the Mayo broth-

ers but not much of the men who may actually operate on them. The name Mayo acts as a guarantee.

A group of medical men combining without the magic of a name could not expect this attitude from the public. The makeup of the group would perhaps convey little, and the requirements of ethics might suppress the names of the members on all stationery. Patients would come for treatment in several ways. First, the reputation of the hospital would gradually become known as embodying the new idea of group treatment. Second, the members of the group as private practitioners would send some of their clients to the hospital. Third, the general practitioner who has no hospital affiliations of his own would sooner or later act as a feeder to the group hospital just as in the past he has always kept ordinary hospitals supplied. It would be necessary to show him that the service is what it claims to be, for many practitioners have become embittered by various hospital abuses. The old-line hospital is still regarded as the last resort and the least of two evils, and all the odium which attaches to institutional care is shared in full by hospitals. A group institution would have a splendid opportunity to aid in dispelling this attitude.

Group Methods and Life Insurance

Group medicine works hand in hand with life extension examinations and insurance work in general. If a company of specialists have in the course of a diagnostic examination found a man comparatively intact with the exception of some condition which has been rectified after having caused temporary disability, would not their report increase the value of the man as a risk? Especially in the case of a man seeking large insurance? In cases of applications for \$100,000 or other large policies, the companies would perhaps send the man for a group diagnosis. It must not be forgotten that there is a good independent field for group diagnosis alone, as shown by the California hospitals and the recent establishment of a purely diagnostic institute in New York. Many individuals of their own accord would perhaps seek to know their actual physical condition in this manner. Group diagnosis would appeal strongly to the eugenists as superior to single examinations of a routine character, and prenuptial examinations would have an especial value that can be readily appreciated.

Does group medicine take cognizance of the possible examination alone or with treatment of a group of patients? We know that if two members of a family consult a physician together he is not likely to ask a double fee. Could group med-

cine guarantee any economic saving in examining husband and wife or two business partners? At first sight this seems doubtful. Insurance companies have never made reductions of this kind. It seems that the saving of time and effort would at best be very small and any reduction of fee would be purely a matter of good will. The condition would be different from cases in private practice in which two members of a family appear with syphilis.

New Status of the Hospital

We have referred to the classes of patients who are or are not suitable for group treatment and to the kinds of patients who might or might not present themselves for treatment. Should the hospital use strict selection in this matter in advance? To do so would defeat in advance the natural selection by the public and general practitioner. Yet in its literature to show the need for its existence the hospital should make public without any reference to cases not desired some idea of those whom it expects to treat. Much depends on whether in addition to taking on the special status the old status is also maintained. As this subject has been partly covered in earlier paragraphs, it is only necessary to state that a patient of the ordinary hospital type may receive group benefits when necessary or on general principles, while all patients who come solely for group advantages could be regarded as analogous to those coming for consultations in private practice and be charged on that basis. This leads to the question of consultation work. Can a practitioner bring a patient for group diagnosis just as he calls in a private consultant? This course would antagonize the private laboratories, for by going to the group hospital the physician obtains examinations of blood, urine, sputum, x-rays, etc., in addition to physical diagnosis. Or again, can a practitioner secure from the group hospital a "treatment" consultation as he does in ordinary consultation practice? In other words, after a group diagnosis, does the hospital lay out a course of treatment to be carried out by the practitioner in the patient's own home? Should the practitioner bring the patient at intervals for renewed consultation? It is evident that patients who could thus benefit would have to be men of some means. Group work would be cheap only comparatively speaking in what it would save in the long run. Even a single consultant may charge up to and at times over \$25.00. Most of these questions are answered in the California plan.

Touching on the question of origin of group medicine, we have already mentioned the leading role which was played by the development of spe-

cialties, although the presence of other factors was necessary to bring it to a head. We may, if we like, regard group medicine as a step in the natural evolution of combination or cooperation in medicine. This, of course, goes back to very old beginnings. All medical colleges, societies, journals, etc., represent cooperation on the part of some of the profession. The evolution of hospitals and dispensaries marks a most important step in this direction, and the striking fact that all but two per cent of the sick of the state are treated by medical men without any element of organization shows that this movement is still in its infancy. The establishment of public laboratories and the close cooperation between laboratory men and practitioners represent a marked step forward. The recognition by the general practitioners of specialists approved by them and the comity between the two belongs in the same category; the specialist can be likened to the reserve of an army to be called upon when its services are really needed. The general practitioner, however, does not cooperate with the specialist who builds up his own following and seldom consults with him. We refer, of course, to the country at large and not to the few metropolitan districts. Medical journal and book clubs and libraries are other examples of cooperation. It is, of course, easy to believe that group practice means another step along the same lines.

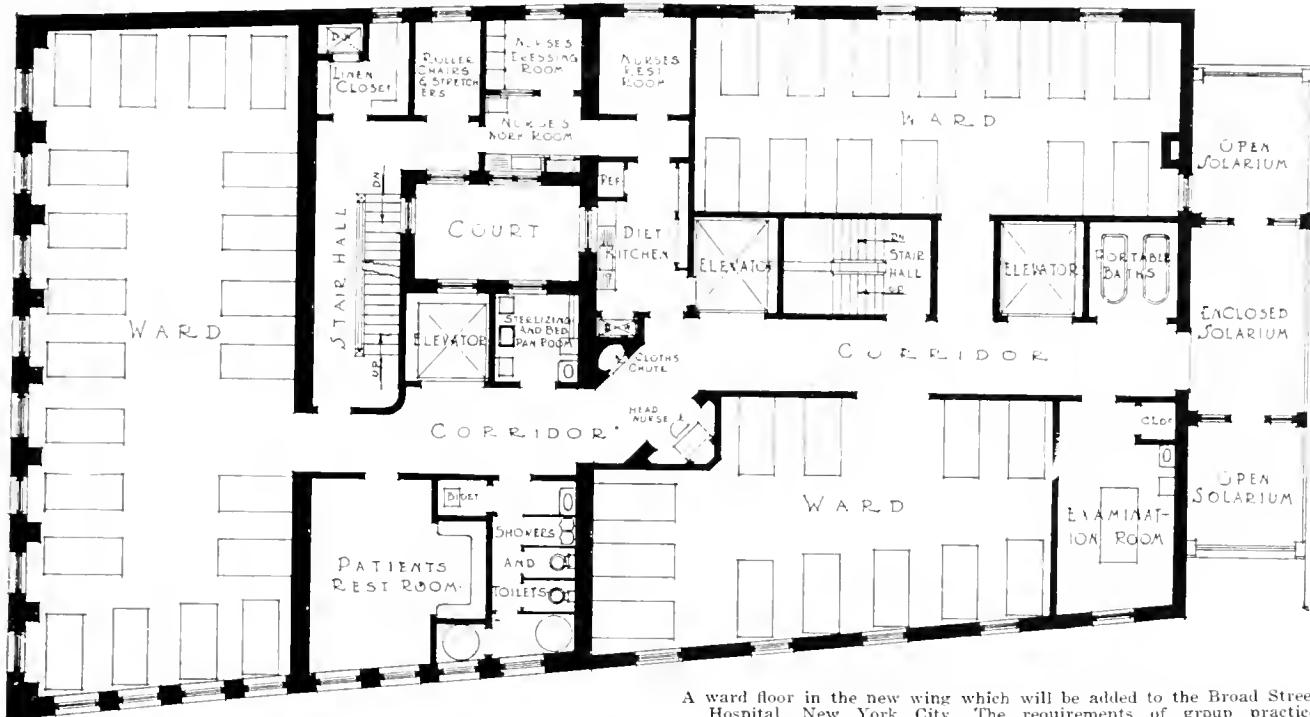
Group Is Safeguard Against Blunders

There is, however, much reason for upholding quite another view of the origin of group medicine. Data have quietly accumulated to show that blunders in the diagnosis made even in the best hospitals by the most expert clinicians are fearfully numerous. The Massachusetts General Hospital seems to have been the first to publish facts to support this view on a large scale, and with this announcement it is said that steps were taken to guard against such contingencies and reduce them to a minimum. But according to certain advocates of pure group medicine to be mentioned later, neither the hospital in question nor the Mayo Clinic has ever practised true group diagnosis. The patient is not examined by a group but by a single clinician, and then referred to the department or departments to which apparently he belongs. The claim is made that no one man has the skill to examine a subject for reference of this kind; that such a method is in no sense group practice; and that it is far inferior to group diagnosis as practised in some of the California cities.

So far as we know, group diagnosis, associated to some extent with treatment, began in San

Francisco in 1915 with the formation of the St. Luke's Hospital Clinical Club associated with the hospital of that name. Other San Francisco hospitals have followed suit, while in San Diego the Scripps Clinic was organized in 1917. The leading motive, according to a local writer, was the exposure of the frequent incorrectness or inaccuracy of hospital diagnoses as shown by autopsies

come. If this was \$100 monthly, the fee was \$35.00. The patient paid often no more than a single x-ray fee would have cost in a detached laboratory. In regard to the character of the cases treated, obscure ones only were received, the selection being fixed by the family practitioners who brought the cases. These practitioners often brought the same patients back for a further con-



A ward floor in the new wing which will be added to the Broad Street Hospital, New York City. The requirements of group practice have been kept in mind in designing the new wing. (William Neal Smith, Architect.)

carried out on a large scale in the Massachusetts General Hospital and other large clinics. Stated in a nutshell, "group medicine is largely a result of erroneous diagnoses in hospitals which could have been avoided by group study." As thus conceived, it was not the province of a group unit to take a patient away from his doctor or to treat him except as in any consultation when the consultant recommends the treatment indicated by the diagnosis. The patient's physician becomes automatically a member of the group, at least an honorary member for the occasion. The total number of hospital physicians in the group was fixed at twelve, and the average number to participate in a group diagnosis was seven. The patient was examined by the diagnosticians in succession and the reports made out in writing were reviewed at a joint session where the diagnosis was reached. In some cases the diagnosis was not made until after a second examination. The patient remained in the hospital on an average a little over four days, and the number of diagnostic hours averaged eighteen. The fee for the entire service was based wholly on the patient's in-

sultation, and, in general, every attempt was made to follow up the outcome.

The doctors were compensated as follows: they were assumed to play the role of ordinary hospital physicians who give their hospital time in return for experience and prestige, but in addition they received a stipend which was based on time spent in diagnosis. Further details are not mentioned. Evidently after the diagnosis was established, many of the patients entered the hospital for surgical or other treatment and paid the regular hospital fees.

Group Has Many Surgical Cases

During the first year at St. Luke's, the number of private patients examined was 265, and of this number 100 had major surgical conditions, 24 of which were treated by operation.

At the Scripps Clinic at San Diego, an independent foundation not connected with a hospital, the same course is pursued throughout. This is the first case in which private benevolence has founded a group diagnosis clinic for men of moderate means.

In conclusion, it is readily seen that group medicine is a complex entity which cannot be quickly or sharply visualized. There are many factors to be considered. First, there is the public. Who are to benefit chiefly by it, the rich, the well-to-do, small-salaried men, or the poor? As far as we have gone, the small-salaried man seems to be the chief beneficiary, the man who earns \$100 a month in a medium sized city;—this figure would probably not suffice for New York. The question should be suggested: "How can group medicine be adjusted to the needs of the rich on one hand and the poor on the other?" The rich man's family physician can easily summon a consultation of specialists but he does not take this step at the start. As stated elsewhere, the suggestiveness of the latter course of procedure is not pleasant, for it seems to connote a bad state of affairs. There are doubtless cases, however, in which the obscurity of the diagnosis would make such a course acceptable, and it is the obscure and exceptional case that is adapted for teamwork. In regard to the poor man, the out-patient department and wards of the city hospitals must supply him with group advantages, and, if his case is of enough scientific interest, he will probably receive the benefit of cooperation, but not to a much greater extent than hitherto. We have already alluded to the possibility of a group of men handling a group of patients on a sort of club or lodge plan, but the possibility of such an evolution seems remote. A few individuals with obscure ailments might combine to secure group diagnosis and obtain such reduced rates as a certain amount of economy of time and effort might warrant.

The Men Who Form the Group

Next to the patients, let us consider the makeup of the medical group. These might be men of prestige or simply men who are competent for the work. They will be full-fledged specialists or mere technicians. In the latter case there would be men who represent laboratory extension only,—men who use the endoscopic instruments and report the results of ophthalmoscopy, uroscopy, etc., but do not further take part in diagnosis. Such a plan might dispense with the group of ophthalmologists and otologists. The group members could be a democratic, self-determining aggregation, or else a few prominent men could create a body of diagnosticians out of young and little-known subordinates. They physicians and surgeons of a hospital could combine and use the

hospital facilities, or a group without hospital affiliations could combine and extemporize premises or else interest some men of the Scripps type to endow an institute. The material treated could be purely surgical, purely medical, or combined. The work could be diagnostic or consultation only in type, or diagnostic and therapeutic. The physicians could serve for experience and prestige only or for nominal compensation or could use a certain amount of commercialism, by catering to the well-to-do and charging large fees for operations, etc., afterwards sharing profits or paying the group members fixed salaries. Hospitals could be devoted to group work or combine the latter with ordinary hospital activities.

That a group of private practitioners without headquarters could carry out practice on the tandem plan seems not only wrong in conception but quite impracticable of execution.

INDUSTRIAL SURGEONS AT ATLANTIC CITY A. M. A. MEETING

Industrial medicine and surgery, their scope, and some future aspects of these branches of medical science, will be discussed by physicians and surgeons from industrial organizations and government departments, at the Atlantic City meeting of the American Medical Association, Wednesday, June 11, and Friday, June 13, in connection with the program of the Miscellaneous Topics Section.

The opening general meeting of the Association will be held in the Music Hall, Steel Pier, Tuesday evening, June 10, at 8:30 o'clock. The foreign guests of the Association will be introduced at this meeting, and the President's Address will be given at this time.

Following is a list of the speakers in the Miscellaneous Topics Section and the papers they will present:

WEDNESDAY, JUNE 11, 1919

SYMPOSIUM: SCOPE OF INDUSTRIAL MEDICINE AND SURGERY.

"Preventive Surgery as Demonstrated by Industrial Practice"; Irving Clarke, M.D., Worcester, Mass.; Discussion by Drs. Sherman, C. G. Darnum, or Corwin.

"Industrial Medical Practice and Sickness Prevention as a Factor in Public Health"; C. E. Ford, M.D., New York City; Discussion by William Alfred Sawyer, M.D., Philadelphia, Pa.

"A State Department of Health Collaborating with Industrial Medicine"; Edward Martin, M.D., State Commissioner of Health of Pennsylvania.

"The Enlarged Program of the United States Public Health Service, Division of Industrial Hygiene and Medicine"; C. W. Schereschewsky, M.D., United States Public Health Service, Washington, D. C.

"International Aspects of Public Health as Related to Industrial Hygiene"; Major George A. Soper, S.C., U.S.A.

General discussion of the symposium: Opened by Francis D. Patterson, M.D., chief, Division of Hygiene and Engineering, Department of Labor and Industry, State of Pennsylvania.

FRIDAY, JUNE 13, 1919

SYMPOSIUM: FUTURE ASPECTS OF INDUSTRIAL MEDICINE AND SURGERY.

"Lessons from Rehabilitating the Disabled Soldiers Applicable to the Industrial Disabled"; Col. Frank Billings, M.C., U.S.A. Discussion opened by James Bordley, Jr., M.D., Baltimore, Md.

"Value of Health Service to Business"; Arthur Young, special assistant to the president of the International Harvester Company, Chicago, Ill.

"Modernizing Our Medical Colleges by Adding Departments of Industrial Medicine and Public Health"; Otto P. Geier, M.D., Cincinnati, O. Discussion opened by David Edsall, M.D., professor of medicine, Harvard University, Boston, Mass.

"A Medical Service for the Small Industrial Unit"; C. D. Selby, M.D., consulting hygienist, United States Public Health Service, Toledo, O.

"Industrial Medicine from the Working Man's Viewpoint"; Whiting Williams, Cleveland, O.

"Industrial Rehabilitation of Belgium"; Dr. René Sand, of Belgium.

General discussion of the symposium by Victor Vaughn, M.D., Ann Arbor, Mich.

¹ Dr. James F. Mumford, late professor of surgery of Harvard University, was a pioneer in group medicine, although his efforts, which go back to 1910 or earlier, were not crowned with success. He finally combined group practice with sanatorium activities, in which he was engaged at the time of his death.

SYLLABUS OF ACTIVITIES FOR THE PROTECTION AND PROMOTION OF THE NATION'S HEALTH

BY S. S. GOLDWATER, M.D., DIRECTOR, MOUNT SINAI HOSPITAL; FORMER CONSULTANT ON HEALTH AND HOSPITALS TO THE BOARD OF ESTIMATE AND APPORTIONMENT OF THE CITY OF NEW YORK

I. Introductory

IN modern industry, in urban development, in the school environment of the child, in man's physical constitution, in nature itself, there exist many powerful forces that tend to undermine health. How greatly these forces are dreaded may be inferred from the efforts of the people, organized and unorganized, to protect themselves from disease and to escape the inevitable consequences of physical deterioration. These efforts cover a wide range of activity—from scientific research to the making of laws, from the co-ordinated activities of great and powerful departments of government to the breathing exercises of puny individuals, from the safeguarding of helpless infancy to the amelioration of old age, from the sweeping of streets to the cleansing of teeth, from the construction of model tenements to the destruction of unsanitary hovels, from the use of force to the appeal to reason.

As one interested in the public health movement, the writer has attempted to avoid mental confusion by classifying the subject matter which concerns the sanitarian and the hygienist. For working purposes, the syllabus which is here presented has been found convenient and useful. While it is fairly comprehensive in outline, much detail has been intentionally, and some, no doubt, unintentionally, omitted. Although what is given will perhaps not exactly fit the need of any other person, it is presented in the hope that it may assist beginners in their preliminary survey of the field.

The scientific foundation of modern hygiene is broad, but not broad enough to confer undisputed authority upon the public health expert who would like to define and to establish, for the mass of the population, minimum standards of living necessary to the attainment of maximum vigor of body and mind. Hence the public health movement requires encouragement and strengthening

The publication in MODERN MEDICINE of the accompanying syllabus of activities for the protection and promotion of Health in the United States is especially appropriate because it covers, or at any rate is intended to cover, the field which the new magazine has marked out for its own—industrial medicine and the nation's health.

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The syllabus presented herewith suggests the need of unified effort throughout the broad domain of public health endeavor.

in the department of scientific research.

Where there is so much to be done, some things are likely to be forgotten. The function of the various specialistic societies in the public health field is to see that this or that important health need is made manifest to the man in the street, and duly attended to by the powers that be. This is a function that might be assigned to a Federal health department poss-

sessing broader supervisory powers than those of the existing organization of the United States Public Health Service.

It is the absence of a well-developed national health service that opens the door of opportunity and of duty to a multitude of private agencies, which may, perhaps, yet find some means of joining hands in a unified effort to reach their common goal. Already they have found a common meeting ground in the American Public Health Association.

The American Public Health Association in the past has undertaken and successfully completed many valuable studies. Why cannot that association, representing as it does all that is being done and planned in public health work, now embark upon the larger task of producing, in a series of volumes planned by a representative editorial board, a condensed encyclopedic presentation of the whole subject matter of practical sanitation and hygiene? It is a heavy task, to be sure, but one not beyond the combined power of the association's large and varied membership. Think of the impetus that such a production would give to public health administration!

The publication of the accompanying syllabus in MODERN MEDICINE is especially appropriate because it covers, or at any rate is intended to cover, the field which the new journal has marked out for its own—industrial medicine and the nation's health.

H. Syllabus**Eugenics**

- The study of heredity
- The application of the laws of heredity
- Segregation of the unfit
- Sterilization by law

Voluntary Birth Control

- Legal limits
- Activities and influence of physicians
- Attitude of social workers

Mothercraft

- Instruction of girls

Prenatal Care

- Under hospital auspices
- Directed from health centers
- Miscellaneous

Maternity Care

- Safeguards surrounding pregnancy
- Supervision of pregnancy
- Maternity insurance
- Suspension of arduous work
- Regulation of midwifery
- Training of medical students
- Home care
- Use of hospitals
- Hospital methods

Infant Hygiene

- Registration of births
- Routine treatment of eyes at birth
- Foundling asylums
- Boarding-out system
- Control of baby farms
- Encouragement of breast feeding
- Consultation centers
- Milk stations
- Municipal
- Private
- Restriction of employment of mothers
- Day nurseries
- Objects
- Number
- Regulation
- Summer outings for mothers and babies

Child Hygiene

- Preschool period
- Inspection and regulation of children's institutions
- Group records at health centers
- Correction of physical defects
- School period
- School medical inspection
- Periodic examinations
- Early treatment of defects
- Vision
- Hearing
- Nose and throat
- Teeth
- Skin
- Deformities
- Compulsory vaccination
- Prompt removal of infectious cases
- Tooth brush drill
- Mental examinations
- School lunches
- Publicly supported

- Privately supported
- Home visiting and instruction
- Public agents
- Representing school authorities
- Representing health officers
- Private agents
- Teaching of hygiene
- By special teachers
- By school doctors and nurses
- By ordinary school teachers
- Physical training
- Compulsory (state laws)
- Voluntary
- Athletics
- Gymnastics
- Breathing exercises
- School sanitation
- Ventilation
- Permanent systems
- Open windows between class hours
- Cleaning
- Fumigation
- Warning
- Lighting
- School baths
- Adjustable seats and desks
- Open-air classes
- Outdoor schools
- Vacation schools
- College organization
- Physical training
- Athletics
- Periodic physical examination

Child Labor

- Attempts at national legislation
- Attitude of Supreme Court
- State legislation
- Backward states
- Legal standards
- Approved standards
- Age limits
- Hours of employment
- Night work
- Employment certificates
- Revocation of certificates
- Supervision of employment
- Admissible and inadmissible occupations
- Children's Bureau
- Aims
- Organization
- Important investigations and findings
- Educational work

Employment of Women

- Extent
- Influence on health of employed women
- Influence on health of husbands
- Influence on health of children
- Regulation of hours, night work, etc.

Widows' Pensions

- Legislation
- Appropriations
- Health value to mothers
- Health value to children

Industrial Hygiene

- Periods of labor and rest
- One day's rest in seven
- The eight-hour movement

Industrial Hygiene (Continued)

- Summer vacations
- Sanitation of working places
 - Ventilation, temperature, and humidity
 - Lighting
 - Dressing rooms, lockers, bath and wash rooms
 - Pure drinking water
- Health measures
 - Lunch rooms
 - Rest rooms
 - Suitable clothing
- Equipment for recreation
 - Roofs
 - Gymnasiums
 - Playgrounds
- Safety measures
 - Inspection to reduce accidents
 - Measures to prevent
 - Injury from accidents and explosions
 - Electrical injuries and shock
 - First aid
 - Workmen's compensation
 - Fire protection
 - Building regulations
 - Safety appliances
 - Inspection
 - Department equipment
 - Volunteer organizations
- Occupational hazards apart from accidents
 - Measures to prevent
 - Injury from dust, fumes and chemical poisons
 - Exposure to excessive light, heat, cold, dampness, compressed air, and sound
 - Cardiac overstrain
 - Fatigue
 - Neuroses
 - Eye strain
 - Affections of the ear
 - Affections of the skin
- Cancer and occupation (x-ray)
- Theories of legislation
 - Prohibition
 - Regulation
- Occupational infectious diseases
- Reporting of occupational diseases
- U. S. Department of Labor
 - Scope
 - Methods
 - Cooperation with Public Health Service in field studies
- States and local administration
 - Industrial commissions and labor boards
 - Function and methods
- Municipal bureaus
- Voluntary trade boards of sanitary control
- Regulation of home workshops
 - Extent of manufacturing in tenement houses
 - Permissible home employment
- Basement and cellar workshops
- Physical examinations
 - To safeguard health of person examined
 - Placement or safety examinations to forestall injury
 - Examinations to prevent disease in person examined
 - To safeguard health of others
- Occupational clinics
 - Present scope
 - Needs

Economics of Health

- Labor movement
 - The demand for a living wage
 - The sanitarian's definition of "living-wage" in terms of human health and well-being

Military Hygiene

- Program of army and navy
 - Examination and rejection of recruits
 - Treatment of remediable defects
 - Vaccination
 - Physical training
 - Rationing
 - Control of venereal diseases
 - Personal hygiene of the soldier
 - Sanitation in camp
 - Sanitation of zones surrounding camps
 - Sanitation of barracks
 - Trench sanitation

Periodic Physical Examination

- Theory
- Practice (apart from schools and colleges)
 - Organized
 - Life extension institutes
 - Life insurance policy holders
 - Health insurance policy holders
 - Industrial groups
 - Government employees
 - Military
 - Civil
 - Unorganized
 - Individual practice
 - Influence of health insurance movement
 - Special training of physicians
 - Development of standard forms and methods

Mouth Hygiene

- Periodic dental examination and treatment
- The tooth-brush
- Use of antiseptics
- Training and employment of "dental hygienists"

Regulation of the Bowels

- By diet
- By exercise
- By massage
- By medicines and enemata

Recreation (see Exercise)

- Organized
 - Outings
 - Games and sports
- Unorganized
 - Popular habits and tendencies

Exercise

- Outdoor
 - Walking
 - Gymnastics
 - Public gyms
 - Public instructors
 - Swimming
 - Public instructors
 - Athletics
- Indoor
 - Gymnastics
 - Setting-up exercises
 - Breathing exercises

Posture and Gait

- Prevention of spinal curvature
- Prevention of flat-foot

Dress

- Rational summer dress
- Rational winter dress

Dress (Continued)

- Choice of linen, cotton, or wool
- Avoidance of tight clothing
- Cleanliness
 - Public wash houses
- Shoes
 - Growing use of rational footwear

Health Resorts

- Public parks
- National parks
- National health resorts
- State health resorts
- Seashore reservations
- Public piers
- Preventoria
- Sanitariums
- Vacation homes

Old Age

- Study of geratology
- Teaching of geriatrics

Post-Mortem Examinations

- Aspetic performance of
- Value of findings to preventive medicine
- Modification of laws governing

Communicable Diseases in General

- National quarantine
 - Consular reports
 - Foreign stations
 - Home stations
- State and local administration
 - Notification
 - Local
 - Interstate
 - Isolation in the home
 - Periods of isolation
 - Placing
 - Visits to enforce quarantine
 - Procedure on discharge
 - Public health "nursing"
 - Hospitalization
 - Compulsory (forcible removal)
 - Voluntary
 - Estimated hospital requirements
 - Available hospital beds
 - National
 - Army
 - Navy
 - Public Health Service
 - State
 - County and municipal
 - Hospital beds in private and semi-public hospitals
 - Duration of detention
 - Diagnostic laboratories
 - State
 - Municipal
 - Private
 - Mailing of specimens
 - Carriers and "contacts"
 - The search for carriers
 - The control of carriers
 - Control of "contacts"
 - Segregation in hospitals
 - In special wards
 - In cubicles
 - "Barrier" system
 - Transportation
 - Special vehicles

Communicable diseases in animals (see "Domestic Animals")

- Anti-spitting laws
- Placards
- Enforcement
- The wearing of masks during epidemics
- Disinfection of person
- Fumigation of air

- Vessels
- Vehicles
- Rooms
- Sterilization of objects
 - Cargoes and ballast
 - Bedding
 - Clothing
 - Books, toys, and other articles

- Use of chemical disinfectants
- Cleansing of surfaces
- Production of immunity by inoculation

- Smallpox
- Diphtheria
- Typhoid
- Rabies
- Whooping cough
- Tetanus
- Pneumonia
- Other diseases

- Free distribution of vaccines and antitoxins
- Control of production, sale, and distribution of bacterial preparations

Standardization of bacterial preparations

Bodies dead of infectious diseases

- Disinfection
- Transportation
- Disposal

Tuberculosis

- Immigration restrictions
- Extent of actual enforcement
- Scope of organization
 - Sanatoria, hospitals, and day camps
 - Number of beds
 - Duration of treatment
 - After-care
 - Results
 - Special provisions in hospitals for insane and in penal and other institutions
- Dispensaries for diagnosis and treatment
 - Standardization
 - Follow-up work
 - Supply of nourishing food
- Tuberculosis classes
- Home supervision
- Protection of exposed children
- Model tenements
- Associations and committees
- Legislation
 - As to hospitals and sanatoria
 - As to dispensaries
 - As to registration
- Indirect benefits of tuberculous activities to non tuberculous

Leprosy

- Existing state and local leprosaria
- Individual segregation
- National program

Hookworm

- Campaign for eradication
- Organization and methods

Social Hygiene

- Sex education
- Ethical training and self-control
- Prophylaxis
- Regulation
 - Reporting
 - Examination
 - Segregation
- Diagnostic clinics
 - State, municipal and private
 - National subsidy

Activities of Public Health Service

- Regulations governing interstate travel of infected persons
- Free distribution of preparations of arsenic
- Federal appropriations for the encouragement of research
- Marriage restrictions

Mental Hygiene

- The mental hygiene movement
- Activities of private agencies
- State activities
- Program of the Public Health Service
 - Training of experts
 - Improvement of educational methods
 - Mental examinations to determine suitable employment
 - Investigations
 - Promotion of legislation to encourage early treatment

Preventive Surgery

- Removal of tonsils and adenoids
- Treatment of dental foci of infection
- Circumcision
- Malignant disease (early excision)

Asepsis

- Application of principles in
 - Surgical treatment
 - Medical treatment
 - Nursing procedures
 - Ordinary life

Antiseptics and Disinfection

- In medical and surgical practice
- In nursing
- In ordinary life (apart from known infectious disease)

Water

- Supply
 - Surveys by
 - National, state, and local authorities
 - University personnel
 - Private sanitarians
 - Municipal water works
 - Private companies

- Protection against contamination of drinking water
 - Protection of water sheds

- Inspection
 - Examination of supply

- Protection of wells
 - Chemical and bacteriological examinations

- Purification
 - By quiescence or prolonged storage
 - By natural filtration
 - By physical, electrical and chemical processes

- Inspection and covering of tanks

- Household filtration

- Household sterilization

- Control of supply furnished to interstate travelers

- Individual drinking cups

- Regulation of public baths and swimming pools

Shell fish

- Regulations to prevent pollution of oyster beds, etc.

Ice

- Avoidance of pollution of natural and artificial ice

Soil

- Protection against pollution (see sewage)

Sewage

- Water-carriage system

- Elimination of cess-pools and privies in towns and villages

- Installation of sanitary privies in rural communities

- Purification by

- Filtration

- Irrigation

- Chemical precipitation

- Electricity

- Bacterial methods

- Dilution

Air**Housing**

- Legal requirements as to

- Factory buildings and stores (see Industrial Hygiene)

- Tenements and dwellings

- Prevention of overcrowding

- Windows

- Airshafts

- Restricted use of cellars

- Hotels and lodging houses

- Hospitals

- Dispensaries

- Other institutions

- Places of assemblage

- Public vehicles

- Ventilation

- Cleaning

- Heating

- The fixing of air standards

- Air conditioning (regulation of temperature and humidity)

- Mechanical systems of ventilation

- Ventilation of sewers

- Hot water vs. steam heating

- Use of electric stoves and appliances in place of gas

- Ventilation of sleeping rooms and living rooms

- Outdoor sleeping

- City parks and piers (see Health Resorts)

- Country life movement

Lighting

- Legal regulation (see Industrial Hygiene)

- Improved voluntary practice in

- Industry

- Auditoriums

- Dwellings

House Construction and Furnishing

- Sanitary flooring and interior trim

- Rugs vs. carpets

- Sanitary wall covering

Insects

- Protection against insects as carriers

- Mosquitoes

- Drainage

- Use of oil

- Fish control

- Larvacides

- Screens

- Prophylactic use of quinine

Insects (Continued)

- Flies
 - Stable inspection
 - Garbage protection
 - Food covering
 - Larvacides
- Fleas
 - Pulicides
- Lice
 - De-lousing
- Bed bugs
 - Insecticides
 - Sterilization of bedding
- Ticks
- Rat extermination

Domestic Animals

- Tuberculin testing of cows (see Milk)
- Inspection and licensing of stables
- Notification of communicable diseases
- Exclusion of diseased animals from cities
- Destruction of diseased animals
- Removal of dead animals
- Dog muzzling

Food and Drugs

- Food contamination in general
- Supervision of
 - Slaughter houses
 - National, state and municipal inspection of animals and meat
 - Ante-mortem inspection
 - Post-mortem inspection
 - Factories
 - National, state and local supervision
 - Sanitary and other regulations
 - Bakeries
 - Markets
 - Bottling establishments
 - Restaurants
 - Soda fountains
 - Examination of food handlers
 - Sterilization of eating utensils
- Food adulteration in general
- Sale of deleterious food prohibited
- Food condemnation and destruction
- Food preservation
 - Cold storage
 - Time limits
 - Drying and canning
 - Salting, smoking and pickling
 - Chemical preservatives
- Choice of food
 - Balanced rations (elimination of dietary cause of certain diseases)
 - Overeating
 - Rationing as an emergency measure
- Sanitary significance of cookery
 - Uncooked food as a vehicle of disease
- Instruction in cookery
- Milk production and distribution
 - Farm inspection
 - Cattle testing
 - The Bang method
 - Examination (sampling)
 - Grading
 - Standards
 - Labeling
 - Limited use of lowest grade
 - Disposition of substandard and adulterated milk

Pasteurization

- Regulation and inspection of plants
- Refrigeration
 - Commercial
 - Domestic
- Milk products
 - Cream, skimmed milk, condensed and evaporated milk
- Sanitary bottling
- Medical milk commissions
- Misbranding and adulteration of foods and drugs
 - National pure food laws
 - Bureau of chemistry
 - State and local regulations

Prevention of Drug Addiction

- National, state and local legislation
- Habit-forming drugs in patent medicines
- Tobacco habit
 - Reference to in school hygiene courses
- Coffee habit
 - Caffeine-free coffee
 - Use of substitutes

Prohibition and Temperance Movement

- Notable alcohol investigations and their results
- Activities of American Medical Association
- Anti-saloon League
- Laws requiring school instruction in hygiene, with emphasis on evil effects of alcohol
- State prohibition and local option laws
- Extent of enforcement
- The recent federal constitutional amendment

Miscellaneous Sanitary and Safety Measures

- Plumbing regulations
- Comfort stations
- Sanitary soap containers
- Individual towels
- Laundry regulations
- Hotel regulations
- Lodging house regulation and inspection
- Regulation of barber shops
- Regulation of boarding houses
- Regulation of sale of wood alcohol and other poisons
- Licensing of persons in various occupations in the interest of health and safety
 - Physicians
 - Nurses
 - Undertakers
 - Druggists
 - Plumbers
 - Elevator runners
 - Engineers and firemen
 - Peddlers
- Reporting of deaths and cause of death
- Burial regulations
- Cremation
- Collection and disposal of garbage
 - Cremation
 - Reduction
 - Dumping at sea
- Collection and disposal of ashes
 - Covered containers
 - Covered vehicles
- Disposal of refuse
- Treatment and disposal of industrial waste
- Street cleaning
 - Sprinkling and washing
 - Sweeping
- Labor camp sanitation

Nuisances

Citizens' complaints
 Authority of health officers
 Authority of police officers
 Regulation of offensive industries which produce
 Dust
 Smoke
 Odors
 Noxious fumes
 Anti-noise regulations

The National Congress

Attempts to create an adequate national department of health

The State Legislatures

Delegation of powers of regulation to health officers
 Progress in legislation affecting efficiency of state health departments

The Courts

Attitude toward sanitary measures
 The extent of the "police power" of health officers
 Enforcement of sanitary measures
 Recognition of legal responsibility of cities and of private citizens for the spread of infectious diseases

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 State and local departments
 Statutory powers
 Types of organization
 Methods of appointment
 Security of tenure

The Police

Participation in sanitary work

Research

Laboratories
 Public
 National
 Hygienic Laboratory
 Bureau of Chemistry
 State
 Health Departments
 Cancer research
 Municipal
 Endowed (private)
 Hospital
 Associations and commissions
 Epidemiology
 Statistical research
 Vital statistics
 Bureau of the Census
 U. S. Public Health Service
 State health departments
 Registration area
 Municipal health departments
 Physical anthropology
 Determination of health standards

Medical Education

State regulation
 Association of Medical Colleges
 Council on Medical Education (A. M. A.)

Nursing Education

State registration
 Inspection of training schools
 League of nursing education

Education of Veterinaries

State regulation

Health Education Through

State agencies

National

U. S. Public Health Service
 Department of Labor
 Bureau of Chemistry
 Bureau of the Census
 Children's Bureau

State

Health department activities
 Activities of education and other authorities
 Conference of State and Territorial Health Officers

Local

Health department activities
 Activities of education and other activities

Private agencies

Schools of public health science and administration
 Schools of tropical medicine
 Chairs of public health in medical schools
 Chairs of sanitation in technical colleges
 Schools of public health nursing
 Schools of domestic science
 Teaching of hygiene in

Colleges

High schools
 Elementary schools

National organizations

American College of Surgeons
 American Hospital Association
 Americal Medical Association
 American Public Health Association
 American Red Cross
 Association for Labor Legislation
 Bureau of Municipal Research
 Child Hygiene Association
 Child Labor Committee
 Child Welfare Association
 Committee of One Hundred
 Committee on Mental Hygiene
 Committee for Prevention of Blindness
 Conference of Soeial Work
 Home Economics Association
 International Health Board (Rockefeller Foundation)

Institute of Safety

Life Extension Institute

Life Insurance Companies

Milk Commission

National Housing Association

National Social Unit

Organization for Public Health Nursing

Playground and Recreation Association

Posture League

Race Betterment Foundation (Eugenics Registry)

Russell Sage Foundation

School Hygiene Association

Society for Control of Cancer

Society for the Prevention of Tuberculosis

Local societies for the promotion of health, the prevention of disease, and the improvement of social conditions

Community health centers

Forums and lectures

Printed matter

Books

Magazines and newspapers

Health Education (Continued)

Articles

Advertisements

Posters, tracts and leaflets

Exhibits

Permanent and temporary

Stationary and traveling

Motion pictures

Expenditure for Public Health Purposes

Public appropriations, national, state and local

Methods

Sums available

Control of appropriations

Budget-making

Per capita expenditure

Principles of distribution

Cooperative appropriations

Grants-in-aid

Private funds

Receipts from Public Health Administration

Services and amounts

How applied

WHERE BOYS GROW STRONG

ONE phase of the health crusade for school children has been the establishment of nutrition clinics. How the nutrition clinic and outdoor life in camp were combined in a study of under-nutrition among New York



This is what a camera man saw when he peeped into a tent at dawn, at the Southfields (N. Y.) camp, just before reveille was sounded. The morning call was sounded daily at 7 o'clock, and things began to happen when this group of lusty health-builders were roused.

school children is shown through the camera's lens in the illustrations reproduced here.*

The New York Association for Improving the Conditions of the Poor, aided by the *New York Globe*, established this camp at Southfields, N. Y., in 1915. One hundred boys were selected for the studies in nutrition. They remained in the camp an average of twenty-four days. A carefully planned, balanced diet was provided.

All the youngsters received three substantial meals daily, and milk and whole-wheat crackers in the middle of the morning. Whole-wheat bread was used exclusively. No coffee was provided. The purpose sought in the experiment was to provide a diet not only adequate, but also well balanced.

The boys were weighed when they first came to camp and at intervals of from five to nine days thereafter. The average daily gain in weight was three and one-half times as much as the normal increase to be expected from boys

of this age. The hemoglobin showed an average gain of 6 per cent by the Sahli test and 4 per cent by the Tallquist. There was an average increase of 9 per cent in the red blood corpuscles for each child.



These boys from the schools of New York City were below the normal weight for youngsters of their age, and were under-nourished. They are learning the lessons of health in this outdoor school. They are finding out that good food, fresh air, exercise, and regular bathing can make a healthy, strong body out of an under-developed body.

Reveille was sounded at 7 o'clock, and the boys immediately raised the sides of their tents and set their cots and blankets out in the sun and air. Twenty minutes later came the signal for a setting-up drill of five minutes, followed by a dip in the lake or a washing up. At 7:45 mess-call summoned the boys to breakfast, after which they replaced their cots and tidied up their tents and the surrounding ground. Swimming and boating were in order when assembly-call sounded at 10 o'clock.

Most of the boys—80 or 90 per cent—could not swim on arrival at the camp. Practically all—over 95 per cent—could swim on their return to the city. Fishing, rowing, games, hiking, etc., followed the bathing period until 11:45, when milk and crackers were served. After the noon dinner, rest for one hour was compulsory.

At the end of the hour of rest, the boys were allowed to either join in some diversion planned ahead for the afternoon or to follow their own inclinations until the supper hour at 6 o'clock. Each evening at 7:15 a camp fire was lit. Around it stories were told and songs were sung. Taps sounded at 9 o'clock.

Exclusive of executive and administrative salaries, the total cost of the experiment was \$9,113. This makes an average of 84 cents a day for each boy.



A view of the woodland site at Southfields, N. Y., where a camp and nutrition clinic were conducted as an experiment in health building among school children from the City's crowded districts.

*The illustrations used herewith are shown by courtesy of the *Journal of the Outdoor Life*.

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

THE NEED FOR LEADERSHIP IN MEDICINE

THE experience of the profession in the last four years in mobilizing the medical forces of the country for military purposes, as well as for the protection of the civilian population, has pointed out in no uncertain way the need for improvement in the technic of teaching medicine. Evidence is at hand from all quarters that while loyalty and devotion to the cause, and a desire to serve the sick and wounded, was universal in the profession, the average physician's attainment was a distinct disappointment to all teachers and leaders in the profession. Also be it noted that the lack of diagnostic and clinical capacity was almost as apparent in the graduates of the last ten years as in those men who graduated before the days when medical colleges had attained their present high standards.

Greater, however, than even the lack of his scientific attainment was the lack of administrative ability of the average physician. Suddenly called upon to establish large hospitals with all of the professional facilities, physical equipment, and executive ability needed to have them properly function, the army learned to its sorrow that the profession at large had no fitness for such service. The doctor was found to be an individualist to the extreme. He had never thought in terms of group action, whether for the purpose of preventing an epidemic, or attending to matters of sanitation on a large scale.

Perhaps one of the most valuable by-products of the war will be the realization that has come to the members of the profession that they are an integral part of the world movement; that until they qualify themselves in sufficient numbers to better understand the broad bases of community life in all its relations, the tremendous import of preventive medicine, the absolute necessity for better organization of the medical profession by groups, for diagnostic and curative purposes, the world at large will make relatively little progress.

Failure on the part of the leaders of the pro-

fession, and particularly the teachers in our colleges, to thoroughly understand the social and economic values that scientific medicine may add to the nation's wealth; failure to think out and prepare programs for the more complete application of preventive medicine; failure to make more generally available the best scientific medicine for the masses; has already forced into their field of action the social reformer with all sorts of patent legislation designed to meet the deficiencies of the profession's work. Intelligent, forceful leadership alone can save the profession and the public from such ill-considered legislation.

Attention is deserved, therefore, to such factors in the teaching of medicine which can in any way contribute to the solution of some of these very vexing problems. The profession at large will never understand the immensity of the problems it faces, nor the manner by which they may be met, unless many graduates of the near future will center their attention upon, and enter into the life of public health and preventive medicine.

In the same way, I believe it may be said, that by no other method may all of the benefits of modern medicine be brought so quickly to the assistance of the great mass of people, the workers of the country who are the backbone of the nation, as through the prompt training of a large group of industrial physicians and surgeons, later to be placed in executive positions in industry. There, in these large units of society they will function not only as plant health officers, in charge of sanitation and personal hygiene, but their clinics will act as clearing houses for the diagnosis of surgical and medical defects, either rendering the educational and curative measures or sending the patients to the properly qualified physicians and surgeons of the surrounding community. Thus they may serve the health departments directly in the control of morbidity, and by early diagnosis and prompt reference to consultants also affect the mortality curve.

EDITOR.

OPPORTUNITIES FOR INDUSTRIAL SURGEONS

BY R. M. LITTLE, DIRECTOR, SAFETY INSTITUTE OF AMERICA, NEW YORK CITY

THERE are increasing opportunities for industrial surgeons of the right sort. Which is the right sort? Not the old-time "company doctor;" not the general practitioner; not the exclusive specialist, and not the surgical aristocrat. The right sort of industrial surgeon is first of all a man who loves his fellow men and who is filled with the enthusiasm of his profession because of the good which he can do in the world. A real industrial surgeon is well educated, with hospital experience—who keeps up with the best medical and surgical knowledge and practices, is imbued with a spirit of constructive service, is interested in industrial life, and has some vision and imagination as to the importance of his work. No man is more important in a large industrial plant, or in the service of a group of small industries, than the industrial surgeon with these qualifications.

Dealing Successfully with Men

A few years ago a young man who had been graduated from a university and from one of our best medical schools, after serving four years in a hospital under one of the greatest surgeons in the country, elected to become the surgeon at a large industrial plant. His chief discouraged him because he thought his talents could be used to greater advantage in another line. But the young man had been associated with working men, had observed the way they were treated by company doctors and some private practitioners; he was interested in industries, and felt that he wanted to spend his life in the midst of our great industrial processes. When he reached his place of employment he found a little dispensary not larger than a box car, in the midst of the great works, unattractive and poorly equipped, and little appreciated by either the management or men. The opportunity was so unattractive that he did not unpack his trunk for two months. He paid a visit in the meanwhile to the city where he had received his medical education and hospital training and told his chief the situation. The great surgeon said to him, "Young man, if the

EXTENSION OF MEDICAL SERVICE

It is utterly impossible for the wage-earner to get the benefits of modern medicine and surgery if he must go from one practitioner to another for special treatment.

In an industry this service should be furnished by the management in a well-equipped clinic or hospital presided over by a broad-minded, skillful industrial surgeon; and in the community each citizen should be able to secure this treatment at a clinic or hospital where a group of specialists work together. The day has come for better organization of medical service both in industry and in the community.

workingmen and has become the chief surgeon of one of our greatest industrial corporations. He is an industrial surgeon of the right sort. He knows surgery. He keeps up to date. He knows men—workingmen—he is interested in them. He likes them; therefore, he understands them. He gives them the very best service of which he is capable—nothing is too good for them when they are hurt. He is interested in their homes and in the community where they live. His influence radiates throughout the whole organization. He cooperates intelligently with the employment, safety, and compensation divisions. He is alert to the general health conditions of the community. He is very much on the job and receives great returns in the good will and appreciation of thousands of men, in addition to a good salary. There are others like him.

The Wrong Type of Doctor

Then there are the "would be" industrial surgeons of a different sort; that kind which brought the name "company doctor" into disrepute; the medical man or surgeon who engages to do the work for a company, a lodge, or some fraternal organization at so much per case, performing his duties in a listless and perfunctory way, with his eye only upon the amount of money which he receives. This sort of an industrial surgeon or medical officer satisfies neither the company, fraternal organization, or working people, and should not be satisfied with himself. Fortunately, the growing intelligence of the country means diminishing opportunities for men of this type. May they rapidly disappear!

president of the company does not know that you are on the ground, it is up to you to go back and let him find it out!" Having the right mettle, he returned, unpacked his trunk, rolled up his sleeves and went to work. To-day he has one of the best built and equipped small hospitals to be found in the country, with a superb organization of assistants and nurses. He has gained the confidence and good will of thousands of

Three strong influences are making increased opportunities for good industrial surgeons.

First: The growing intelligence and deep concern of employers for the health and well-being of their employees is the first of these three influences. During the last decade there has been a remarkable change in this respect. Simple fundamental facts about life are coming home to the employing class. They are learning that the six prerequisites to a normal life are health, wealth, knowledge, friendship, esthetics, and righteousness. Those who study the industrial problem, now acute and full of commanding interest, recognize that it is a sound principle of industrial management to look after the health of the employees carefully. Good workmen are healthy workmen. Production and contentment rest upon health as the keystone of the arch. Work places must be safe and sanitary. Occupational diseases need to be prevented and injuries properly and fully treated. Forward-looking employers today are incorporating industrial surgery and its corollaries as a fundamental part of their organizations. It pays them in dollars and cents and brings other returns no less valuable. An industrial plant with five hundred employees may profitably employ an industrial surgeon for full time, particularly in hazardous industries. Not many have done this, but they will do it within a few years. An industrial surgeon is indispensable in a similar plant of one thousand employees. A large corporation with many plants has a dispensary or small hospital at each plant. There is a growing opportunity, therefore, in our larger industries for industrial surgeons who have an industrial point of view, who are well equipped professionally and who will put their hearts into the work in harmony with other branches of the management.

Compensation Laws Extend Practice

Second: Compensation laws make opportunities for industrial surgeons. Such laws now operate in thirty-nine states, three territories and in the Federal government. The proper administration of these laws places an emphasis upon skilled industrial surgery. The money paid to an injured workman is not as important as the medical service which is furnished him. Unfortunately, in many states the medical service is limited as to time and expense. The tendency, however, is to increase the time and enlarge the amount which can be paid. It is only a question of time until the compensation laws will be changed to provide all reasonable medical, hospital, and surgical attention to those who are injured in the course of their employment. This means that well qualified surgeons will have in-

creasing opportunities for their profession in this field. There has been considerable dissatisfaction in the profession because of the way in which the medical service has been controlled by commissions, insurance companies, and employers. There is some ground for the irritation, but a better day is coming. Physicians and surgeons must recognize that rates for industrial surgery when paid by companies per case, will be industrial rates, lower perhaps than obtain in private practice in well-to-do communities, and much less than popular specialists receive for their work. In the nature of the case it will be so. Naturally, many physicians and surgeons do not care to treat industrial patients. The average man, however, may well afford to do so, as he is sure of his pay, and the amount will not be so much less, than he would receive in general practice, and sometimes more.

Hospital Service in Industry

The intelligent workman dislikes nothing more than to be a charity patient. He should never be treated as such. It injures his self-respect. Whenever a physician treats an employee in his private office or in a hospital he ought to give the patient the best service of which he is capable. Some physicians and surgeons are but little less than criminal because of the perfunctory way they treat injured men, permitting infections, making wrong or imperfect diagnoses, and neglecting also to care properly for their patients. It is to be desired that industrial accidents shall be treated by those who are experienced in the work. A hospital which receives accident cases ought to be specially equipped for the work and have a staff interested in and skilled in caring for these cases.

In some of our large cities, physicians with an aptitude for this work have developed clinics and small hospitals and serve a number of industries. They are helping to develop the group system of medicine and surgery, a plan which is destined to grow and become highly serviceable and influential. In one of the small cities of the Middle West, where the general hospital facilities are not adequate, a surgeon with vision and practical business ability has developed a clinic and hospital with an experienced staff and does the work for several railroads and large manufacturing plants. He has a corps of skilled assistants. Every injured man who passes through his hospital receives the best medical and surgical attention. Many of his patients come to his hospital because of the poor work done by local practitioners. The companies send their injured men to his clinic and a compensation commission has effected a business arrangement with him to care for all

the employees of an important industry. The working people of that general community are helping to make his clinic popular, as they tell one another of the considerate and skilled service which they receive there.

There are many communities throughout our country where there are opportunities for surgeons with ability to develop a similar group system of treating industrial injuries and diseases. The physician needs to know how to deal with the management of industries and the compensation or accident boards and be competent also to develop and manage a skilled staff, all of whom will have the industrial and social point of view.

Third: The third influence which will help to make opportunities for industrial surgeons is the growing appreciation of the economic value of health. It is estimated that the working people of the country lose on an average nine days each year because of sickness. Much of this sickness could be prevented. Further, it is obviously true that a multitude of sick people continue at work when they ought to be under treatment at home or in a hospital. The loss to industry through sickness is much greater than on account of accidents. Indeed, the economic loss because of ill health is second only to the loss on account of labor turnover. The better organizing of industry which is now taking place will emphasize the health phase of industry as well as accident prevention and suitable conditions of labor. The industrial physician or surgeon, therefore, will have his place right by the side of the employment manager. All applicants for positions should be, and in time will be, given a careful medical examination, not to reject them or discriminate against them, but in order to classify them in the works. Of course, some will necessarily be rejected. Unless the physician or surgeon who makes these examinations has the industrial point of view and is in sympathy with working people they will resent the physical examination; but a physician or surgeon of the right type who understands workingmen, and who sympathizes with their point of view, can solve this phase of the problem.

Industry Leads in Teaching Health

Initial physical examinations at the time of employment are fundamental to the right placing of employees but should be followed by periodic medical and physical examinations of all employees. This should take place at least every six months and some employees ought to be examined more frequently. When this becomes the custom in most of our large industries and is accepted by citizens generally, a great step ahead will have been taken in protective health measures. The

worth of such a system can be demonstrated more easily in a large industry than it can be in the community at large. Perhaps, therefore, the better organized industries will become teachers of the community in this respect as they have in many others through accident prevention, recreation, insurance, playgrounds, etc. If half the thought and money should be employed in prevention of sickness, accidents, and labor turnover that is expended in payment for accidents, sickness, and labor turnover, our country could soon pay the gigantic war debt.

The war debt and increased taxation will compel a more scientific and careful organization of industry and mode of life for all citizens. In this respect, perhaps, it is a blessing. We are about to learn that we cannot afford accidents, sickness, and a labor turnover of 100 per cent or more in many of our industries. Capable industrial surgeons will find their place, and function effectively in the better economic and social organization which will shortly be ushered in.

Physicians Most Socially Minded Men

But let it be remarked that physicians and surgeons to succeed in this work need to have the social and industrial point of view. The one who has an individualistic attitude will not succeed. He will not get along well either with the workingmen or the management. Perhaps the majority of medical men are individualists; in one sense their profession makes them such. The general practitioner is apt to be an individualist. He treats individual patients at his office, in their homes and the community hospital. For the most part he is a single-handed workman. If he is a specialist he may be even more individualistic than the general practitioner. This is the reason why it is so difficult for medical associations to agree upon principles and methods for community health and social betterment. Yet the principles of biology and the facts as to bacteriology, of infections and contagions, all emphasize the social principles of life. Every well educated physician or surgeon knows that health depends upon many factors; likewise the proper treatment of sickness. All that physicians and surgeons need to do is to follow out the fundamental principles underlying their profession and the laws with which they cooperate to prevent sickness or to restore health and they will have the social point of view. Indeed, physicians should be among the most socially minded of men and furnish leaders and statesmen who will develop great methods of prevention suitable to an industry, the community, and the State. Of course, the community makes physicians and surgeons what they are in part, but the time has come for the profession to produce

some courageous pioneers who will put the emphasis upon prevention, broad health measures, physical examinations twice a year for all people, and group methods of treating sickness when it occurs. It is utterly impossible for the wage earner to get the benefits of modern medicine and surgery if he must go from one practitioner to another for special treatment. In an industry this service

should be furnished by the management in a well-equipped clinic or hospital presided over by a broad-minded, skillful industrial surgeon; and in the community he should be able to secure this treatment at a central clinic or hospital where a group of specialists work together. The day has come for a better organization of medical service both in industry and the community.

HEALTH SERVICE—HAMMERMILL PAPER COMPANY

BY M. HARRISON, MANAGER, EMPLOYMENT AND SERVICE DEPARTMENT, ERIE, PA.

HUMAN relations in industry is one of the great problems confronting American business to-day, and a subject that is receiving the earnest thought of the biggest men in the country.

Manufacturing concerns have given recognition to the importance of this question by the establishment of centralized departments to deal specifically with all phases of this subject, the executive heads of these departments being styled directors of personnel, supervisors of personnel, directors of industrial relations, superintendents of employment, employment managers, etc. Whatever the title of the executive, his position is a very responsible one and he ranks in authority with any other executive officer. He should report on the activities of his department only to the management direct.

At the Hammermill Paper Company a centralized department known as the employment and service department, has to do with all questions of industrial relations. In this brief article we have to deal with but one phase of this work, although the most important of all; that is, Health Service. This division is of primary interest, as the health of the worker and his family reflects directly upon production, quality of work, and earnings.

The drawing (Fig. 1) shows a lay-out of our department, linking together under one roof all the activities covered in our work.

Particular attention is called to the medical department, which embraces the doctor's examining room for medical examination prior to employment. After a man is interviewed and decided upon for a position, he passes across the corridor to a booth which is provided with a seat, hooks for clothing, and a mirror. He removes sufficient clothing to permit of physical examination. After the doctor's examination he goes back to the booth, dresses himself, and passes over to the

employment office for further instructions. The number of booths necessary depends upon the size of the plant and number of hirings. Three are sufficient for our needs.

It will be noted that we have a nurses' room and an office supply room for medical supplies.

The first aid room, when completed, will be equipped with all necessary appliances for the sterilization of instruments, dressings, gowns, and utensils. A corner of this room will be set aside for laboratory examinations such as urine, blood, and sputum analyses. This room will be used for both first aid and dispensary work. In cases of emergency when it may be necessary to handle male and female patients at the same time, provisions have been made to divide the room into two compartments, as will be noted in the drawing. Every modern and sanitary convenience will be provided for the convenience of the patient.

This department is not in operation yet, but the plan has been adopted and we hope to have it in working order before the end of 1919. At present our employment offices are all together, but our medical department is in another building.

Our health supervision may be classified in the following groups: Medical Examination; First Aid; Safety Service; Sanitation; Home Visiting of Absentees; Compensation; Education.

Before discussing the work of the various divisions of the health service, I want to make clear the underlying principles we keep before us in this whole matter of human relationship. If it is to be a success it must be done on a strictly business basis. It must pay in dollars and cents both to the concern and to the employee. It is not philanthropy, charity, or social uplift. Care must be exercised that it be not misunderstood by the worker as paternalism.

We do not use the word "welfare." This is a

much abused term and is looked on with suspicion by the employee. We believe "service" is a much better expression. What we are working for is the square deal, the best possible working conditions, the best wages we can pay, and the goal—ultimate contentment for all. This is our aim. This is what we are striving for, and this is the thought we try to get home to all of our workers.

Why should not the human element, the most precious raw material of all, receive the same attention that mechanical and plant equipment does? It is no more than common justice to the individual. He is entitled to work in good surroundings with plenty of fresh air and good light. He is entitled to protection against accidental injury, and to have his health cared for and to be protected from infectious, contagious, or communicable diseases that may be brought into the shop by the new comer.

In the final analysis, what we do in the way of health service is for the best interests of the company, as well as the employee. This is the only ground upon which this work should stand and the only basis which would justify its existence. The worker wants to retain his self-respect—in no other way will his full cooperation and good will be received.

Medical Examination

Directly linked up with high production, good morale, and a stabilized working force, is the health of each employee. When a man is in good health he is brimful of energy and radiates good cheer, which is infectious to other workers about him. The reaction is just the opposite if he is ill

or troubled with some chronic condition; he may not be ill enough to lay off, but just feels depressed and listless. As a consequence his production falls off, he does poor work, earns less money, and becomes dissatisfied. He is not affected alone, because the company and his fellow workers also share in the loss of efficiency. Through proper medical examination before employment a great deal of this can be prevented.

Examination of the mouth is a very important factor in this work. Badly decayed teeth, and especially poorly filled root canals with abscessed condition of the roots, are the direct cause of many chronic conditions.

Many men are employed who have old hernias which break down after they are on the job, for which the company has to assume responsibility in the majority of cases.

Defective eyesight, color blindness, incipient tuberculosis, venereal diseases, flatfoot, varicose veins, and defective hearing, are among the many other conditions brought to light after the man is on the job and we visit his home to find out why he is losing so much time. In many instances all of these conditions would be remedied by medical examination before employment.

Reduction of hours off has a very important bearing on the earnings of the worker and production of the plant. When a man loses time, he not only loses in wages but the company loses the services of a skilled operator. It costs money to break in a green man to do his work until the skilled man is able to be back on the job.

Then with reference to that very vital question of scientific selection of employees and fitting the man to the job, how are we going to know what

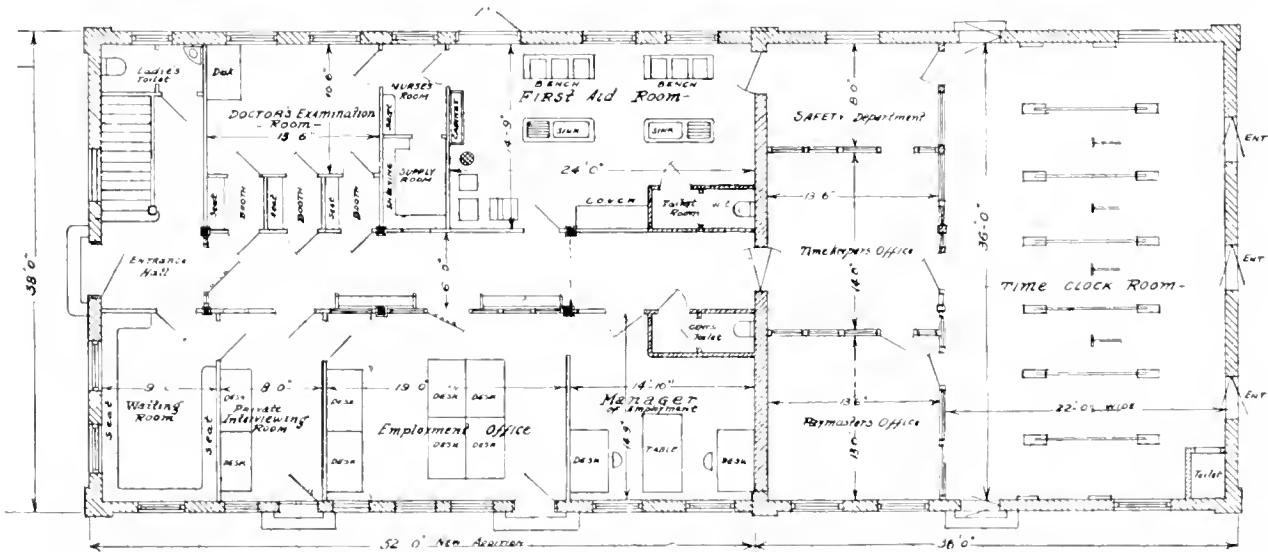


Fig. 1. The medical examination room and the employment office of the Hammermill Paper Company are directly across a corridor from each other. All of the activities of the health service for employees are linked together under this one roof. The medical examination service, the first aid service, the safety service, and the directors in charge of plant sanitation, home visiting of absentees, compensation, and education have centralized offices in this building.

kind of a job is best fitted for him if we do not know his physical condition, as well as his mental equipment? Furthermore, medical examination is the one and only means of protection against infectious, contagious, or communicable diseases being brought into the organization by the new comer.

From the foregoing it will be seen that the arguments in favor of medical examination are: (1) protection, (2) production, (3) cooperation.

First Aid

The first contact with the injured or sick employee is had through the first aid department. This department, in direct charge of a trained, first-aid nurse, under supervision of the plant physician, is equipped in every way to render quick and efficient service. All minor injuries and redressings are cared for here. More serious injuries are removed to the hospital. We do not maintain a plant hospital. Serious accidents are very few, due to eternal vigilance along safety lines. Very good hospital facilities are available in town. An ambulance can reach us in ten minutes. No discomfort is suffered by the patient, as first aid care is promptly given by the time an ambulance has arrived, so that there is no nerve-racking wait to be endured. Unless patients want their family doctor, our plant physician takes care of such injuries at the hospital. Our two local hospitals are both very good and we work in close cooperation with them.

Supplementing our first aid room, and as a means of affording the quickest possible attention in case of serious accident, each department in the mill has a first aid cabinet. The nurse in charge of the first aid department is held respon-

sible for keeping these cabinets filled with fresh supplies and ready at all times for any emergency.

These dressing cabinets, in a way, may be looked upon as first line dressing stations, to be used only in exceptional cases, or at such times as the first aid department may be closed.

Safety Service and Sanitation

To protect the worker from getting injured receives more time, thought, and energy than care for him after he is injured. Our safety department is under a trained safety director, whose duty it is to keep informed of the latest rulings on the most approved safety methods. It is also his duty to study plant conditions and to see that all hazardous places are guarded. The utmost care is given to his work.

Bulletin boards are placed in prominent places in every department of the mill. Excellent bulletins on safety are furnished us by the National Safety Council, and are posted on all bulletin boards. All machinery, motors, belts, etc., are fully protected by mechanical guards. A special department is maintained in our machine shop for the manufacture of safety devices.

We have our own safety council, composed of committees, the members being the superintendents, foremen, and workers from the plant. This council holds monthly meetings on safety problems. From the council are appointed traveling safety inspectors, whose duty it is to make an inspection of each department and check up on safety work. Reference to the chart showing graphically results in reduction of accidents during years 1916, 1917 and 1918, speaks for itself (Fig. 2).

Another very important division of service

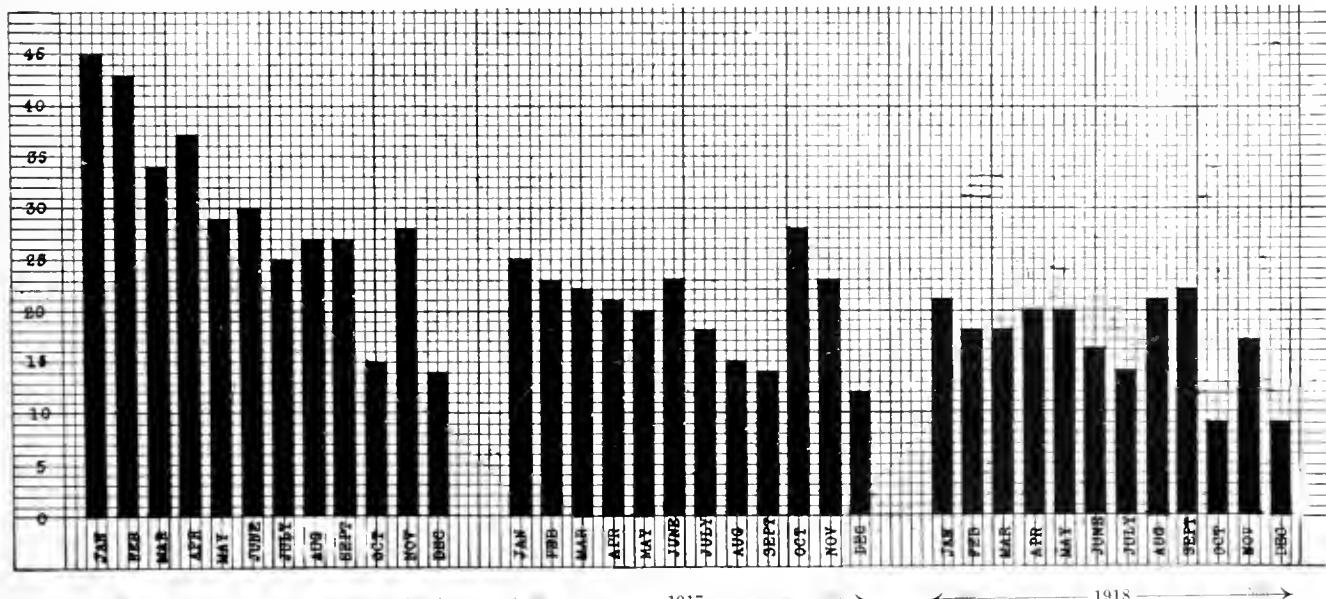


Fig. 2. Reference to this chart, showing graphically the progressive reduction of accidents during the years 1916, 1917, and 1918, as a result of the Hammermill health service, speaks for itself.

work that looms big from the standpoint of health is sanitation. Clean work rooms and a clean house in general mean freedom from disease. We have sanitary drinking fountains, lavatories, shower baths, and clothes lockers, and every effort is made to keep them in good condition. Also,

best quality of food is furnished. We want our restaurant to be a reflection of the spirit of the concern, and it serves its function if it helps to make healthy, happy, and contented workers.

Home Visiting of Absentees

It is in the home of the worker that we can get to know him better, and he can learn to know us. Real health service can be done in the home and the worker's family responds readily and appreciatively, if approached in the right way.

The success of this work lies solely in the hands of the one selected to visit in the homes. I want to lay particular stress on this point. It is of great consequence, as the wrong person may do great harm. Unless the home visitor has the proper mental attitude towards the job, and a real conception and vision of what it is all about, he or she will fail of accomplishment. We feel we have been very successful in this work, due largely to the type of workers we have selected to do it.

A graduate nurse alone is not sufficient. This qualification is essential, but only so far as it will help in diagnosing conditions. Broad human sympathy, the ability to meet these people frankly and fairly, to win their confidence, and to make them feel they are giving as much as they receive; and, besides carrying our message to them, to bring back to us their point of view—these are the things that count, and lead to a better understanding.

It is my belief that comprehensive, diligent follow-up of absentees not only reduces hours off and keeps down sickness, but is one of the best vehicles we have for personal contact and for getting the cooperation of the worker.

The report of absentees is in the hands of our visitor at 8 o'clock, and we visit every absentee daily. This includes all sick or injured, either at

Daily Absence Record. HAMMERMILL PAPER COMPANY.

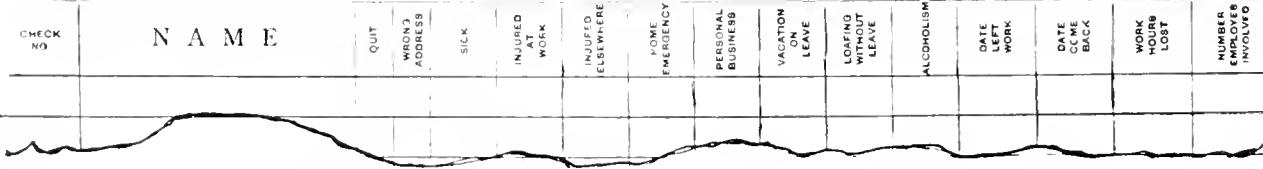
Department		Date													
Check No	Name	QUIT WON'D ADDRESS	SICK	INJURED AT WORK	INJURED ELSEWHERE	HOME EMERGENCY	PERSONAL BUSINESS	VACATION LEAVE	COFFEE WITHOUT LEAVE	ALCOHOLISM	DATE LEFT WORK	DATE COME BACK	WORK HOURS LOST	NUMBER EMPLOYEE INVOLVED	
															
Summary															

Fig. 4. Each department in the Hammermill organization prepares a daily absence record on this form.

home or in the hospital, the worker, or members of his family. Aid of every kind is given, medical, nursing and domestic when needed.

The forms submitted illustrate the records we keep of this work, as to hours lost, reasons, etc. (Figs. 3-4). A graphic analysis of the results and data obtained through follow-up work are available also. (Figs. 5-6).

Compensation

Hammermill follows a very broad policy with reference to employees who may become injured while in the service of the company. Compensation insurance is supposed to provide medical and hos-

Education

Morale is an absolutely necessary asset that no organization can do without. Morale can be developed through education, and education must be an active part of every live organization's program.

Hammermill's motto, as given us by our president, Mr. E. R. Behrend, is "Teach—Don't Boss." Health conservation and health service can only be gotten across by education. Two of our most effective means of expression are through the medium of our house organ, "Hammermill Bond," and group meetings.

MONTHLY ABSENCE RECORD

HAMMERMILL PAPER CO.

Month of _____

Check No.	Name				Department			Occupation							
					Male	Female	Married Single Widower								
Address		Age													
RACE		Roumanian	Russian	Scotch	Greek	Swede	Spanish	Finn							
American		Austrian	Italian	English	Russian Pole	Swiss	Hungarian	Albanian							
Polish		Macedonian	German	Irish	Canadian	Bohemian	Mexican	Norwegian							
Day of Month	Sick	Injured at Work	Injured Elsewhere	Home Emergency	Personal Business	Vacation on Leave	Loafing without Leave	Alcoholism	Wrong Address						
	A HL	A HL	A HL	A HL	A HL	A HL	A HL	A HL	A HL	A HL	A HL	A HL	A HL	A HL	A HL
1															
2															
30															
31															
Total Hours															

Fig. 5. An analysis of time-loss by employees from all causes is made at the end of the month by transferring the required information from the daily absence record.

pital care for the injured workman; and, in addition until he is able to return to work. All are more or less familiar with it and how it works out in practice.

In many cases, under the Pennsylvania Act, especially in severe injuries requiring prolonged medical and hospital treatment, compensation falls short of meeting the full medical expenses. In the majority of cases the physician and the institution must look to the patient for whatever charges are accrued after the two weeks' compensation is cared for. It has been my experience that this usually is a great hardship to the patient. Where the compensation insurance does not cover the employee's hospital and doctor bill, if the employee is not financially able to meet the balance, the company takes care of it.

The house organ carries a written message and keeps before the personnel in this way the problems discussed above. The group meetings provide a means of personal contact and of personal message. I believe this group meeting idea is original with us, never having heard of another concern using a similar method.

The Doctor

The doctor's place in industry to-day, aside from the purely professional attractions, offers unsurpassed opportunities for service not only for the good he can do in the particular plant in which he is interested, but for the far-reaching effects of his work that will be felt in the homes and in other shops in the community, in the state, and in the nation. The whole economic structure of modern

civilization will be affected and benefited thereby.

Medical and health service is here to stay, as an important branch of industry. It seems to be the trend of things all over the country that medical examination before employment is a sound procedure, and is gaining rapidly in popularity. This means that concerns that have never employed a plant physician will be obliged to do so, either as a full-time member of their personnel, or on some part-time arrangement. Every member of society

employees responded? It is about as difficult to trace the direct, tangible results from this kind of work as it is from advertising. Yet we know, should we drop our advertising, that we would soon go out of business.

I do not know the cost per person per annum at this writing. We are now working out a system to give us these costs. This we do know, that it is producing results, big results, in loyalty, *esprit de corps*, better understanding, and more

MONTHLY ABSENTEE RECORD

SUMMARY ABSENTEES MONTH OF FEBRUARY 1919

SHOWING WORK HOURS LOST, NUMBER OF ABSENTEES AND PERCENTAGES BY DEPARTMENTS

DEPARTMENTS	SICK	INJURED AT WORK	INJURED ELSEWHERE	HOME EMERGENCY	PERSONAL BUSINESS	VACATION ON LEAVE	LOFING WITHOUT LEAVE	ALCOHOLISM	WRONG ADDRESS	TOTAL WORK HOURS LOST	NUMBER OF EMPLOYEES INVOLVED	% EMPLOYEES LOSING TIME EACH DAY
Yard	300	35	45	20	302	50	-	10	762	25	-	7.8
Wood Room	881	10	30	68	113	288	291	10	43	1735	48	15
Sulphite Mill	361	-	-	26	79	200	32	-	26	724	25	7.8
Beaters	212	11	-	53	37	155	30	-	-	498	22	6.8
Paper Mill	315	-	-	27	39	115	42	-	-	538	11	3.4
Finishing Room: Males	848	-	-	-	153	152	141	43	83	1382	51	15.9
Females	349	-	-	149	103	189	145	43	43	940	55	17.1
Machine Shop	907	209	-	-	97	683	35	10	40	1981	60	18.7
Laboratory	115	-	-	14	54	10	-	-	-	193	10	3.1
General: Male	73	-	-	-	30	20	27	-	-	150	6	1.8
Female	20	-	-	5	-	-	-	-	25	1	-	.4

Fig. 6 A study of the relative efficiency of the various departments at the Hammerhill plant from the standpoint of health, accidents, idleness, and time-loss, prepared by compilation of the data collected by the health service.

ty will be benefited by the advent of medicine into industry. It has come to stay and its influence will be felt more and more as time goes on.

No doubt this question and some others will be in the minds of all those who may read this article. What are the tangible results? What are the costs per person per annum? How have the

FACTORS IN INDUSTRIAL PHYSIOLOGY

"A humane conception of industry demands recognition of many factors. The impairment of health and life which comes by slow and imperceptible degrees in the form of depletion of nervous energy and exhausted vitality occasioned by the strain and fatigues of industry, accounts for enormous losses to the community and to industry. With the changes that have come through the discovery of new processes, the invention of mechanical and electrical devices, the utilization of new powers, *intensity*, in contrast with *duration*, of effort, has become an increasingly important consideration. The dangers incidental to strain which arise from intensity of effort

contentment, as evidenced by freedom from labor troubles, decreased turnover, less laying off, increased production, and a more wholesome atmosphere throughout the whole plant.

We know we could no more do without it than we could do without our sales, advertising, or engineering departments.

constitute a class of evil against which it is not possible to take too great precautions. The effect of strain and intensity of effort in employment is something that cannot be gauged by the generally accepted methods of classification based upon external evidence. Visible criteria, such as age, sex, and hours, may be applied up to a certain point; then it becomes necessary to take account of other elements in the human equation, and to consider a variety of physiological and psychological reactions."—W. L. Mackenzie King.—"Industry and Humanity."

No one is useless in the world who lightens the burden of it for someone else.—Charles Dickens.

HEALTH HAZARDS AND AFFLICTIONS OF SOFT COAL MINERS

BY EMERY R. HAYHURST, M.D., PH.D., CONSULTANT, DIVISION OF INDUSTRIAL HYGIENE, OHIO STATE DEPARTMENT OF HEALTH, COLUMBUS, OHIO

THE health of employees in the coal mining industry in the United States has remained a matter of more or less conjecture. In regard to certain working conditions, the United States Bureau of Mines and associated departments have done much work upon ventilation, temperature, and humidity, particularly in respect to explosions and sudden disasters, such as asphyxia. There has been no attempt to analyze the health hazards, to detail the afflictions, or to compile the vital statistics of soft coal miners.

During the last half of 1918 the Ohio Health and Old Age Pensions Commission and the Illinois Health Insurance Commission assigned the investigation of these questions to the writer in a cooperative arrangement with the respective state departments of health. In Ohio I had the able assistance of Dr. R. P. Albaugh, director of the Division of Industrial Hygiene, and in Illinois, of Mr. Paul L. Skoog, director of surveys.

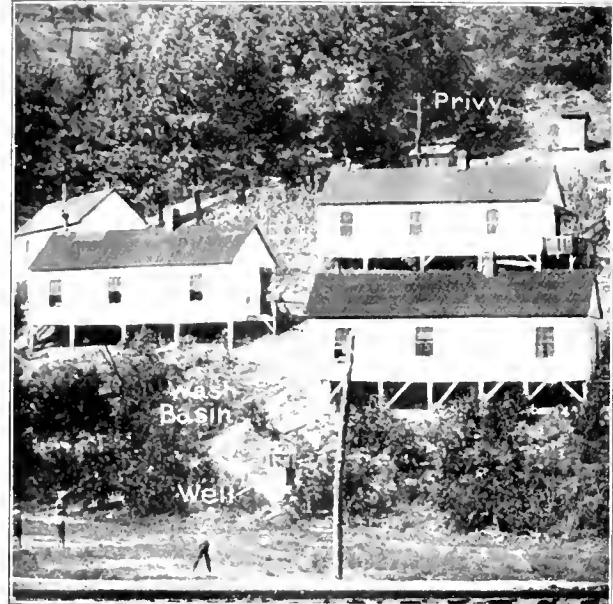
Bituminous or soft coal only is mined in Ohio and Illinois. The employees in Ohio in 1917 totaled 49,919 and produced 41,677,986 tons of coal; the employees in Illinois for the same year were 80,893 and produced 78,983,527 tons. Penn-

sylvania and West Virginia are, however, the two largest producers of soft coal. The industry, while fluctuating year by year, is constantly on the increase, and the coal in sight in each state is enough to last for several centuries, allowing for stable increment in the rate of mining. The coal fields of Ohio lie in the eastern third of the state and comprise thirty of the state's eighty-eight counties; those in Illinois begin at La Salle, in the northern third of the state and extend to the state's southern counties, where the big fields exist, and comprise fifty-one of the 102 counties. In both states the coal fields are divided into twelve districts. An itinerary for field inspections was arranged which covered all districts in both states, during the summer of 1918. There were forty-three mines visited in Ohio, employing 6,072 men, and fifty-six mines visited in Illinois, employing 15,809 men. In addition, many mining towns were inspected and persons interviewed by a pre-arranged questionnaire, including twenty-three mining physicians in Ohio and fifty-three in Illinois. Mortality statistics were compiled principally from the records of the United Mine Workers of America at Springfield, Illinois. The



A multiple-tenement dwelling of concrete construction in the type of architecture that is recommended by the United States Bureau of Mines as a desirable pattern for homes in mining towns, to replace the insanitary shacks which have housed the families of miners in so many localities. The apartments are of five rooms each, and are fitted with all modern conveniences. The photograph was taken at Gary, Ind.

investigation also covered typical examples of housing conditions and the methods used in mining communities to cope with sickness and death. We traveled by automobile principally. Selection of mines to visit was made so as to include those of large, medium, and small production and those adjudged by mine inspectors and others to be



Insanitary arrangement of well, house, and privy, which is typical of conditions found in various mining centers in a survey of sanitary conditions.

good, fair, and bad in respect to working conditions.

Mining Conditions

Ohio is the older producing state and is a district of shallow mines with the drift type of entrance predominating. The deepest mine is 275 feet. Of 1,207 operating mines, but 168 employed more than 100 men, the largest employing 488 men (Webb Mine in Belmont County). Illinois is a district of deep mines with the shaft type of entrance almost universal. The deepest mine (at Assumption) is 1,004 feet. Of 810 operating mines, 286 employed more than 100 men, the largest employing 969 men (mine at Orient in Franklin County).

The room-and-pillar type of development characterizes Ohio mines and also Illinois mines, with the exception of some long-walled mining (adaptable to low seams) in the northern part of the latter state. All geological coal seams are worked in both states, but two or three seams constitute the principal producers. The distance to the working face from the entrance in older mines reaches approximately five miles in Ohio and as much as three miles in Illinois mines. Both steam and electricity are extensively used for power,

but terminal haulage in bigger mines and motive power in smaller mines is usually by mules, horses, ponies, or man power. Mining machines cut 85.7 per cent of the coal mined in Ohio and nine-tenths of the workers are employed in machine mines. On the other hand, in Illinois, mining machines cut 60 per cent of the coal produced, while 13,957 men actually work with mining machines. The balance of the coal is produced by pick miners.

Animal barns are located more below ground in Illinois than in Ohio. Black powder constitutes the chief blasting substance, although considerable "permissible" powder (a safer form) is used in Illinois, and dynamite, in both states, for the blasting of rock. All "shooting" is done by shot-firers after work hours in Illinois mines, but is done, as a rule, by the miners themselves during work hours in Ohio mines. Ohio mines are, as a class, wet mines and are quite cool and often muddy under foot and dripping from overhead. Illinois mines are dry mines, the deeper ones rather warm, and sprinkling of roadways is much resorted to in order to prevent explosions from following along dust courses.

Mine Gases

The chief mine gases are of three types: fire damp (methane, CH_4), which is explosive but not dangerous to health; black damp (where carbon dioxide and nitrogen are increased at the expense of oxygen); and white damp (carbon monoxid). The first two "damps" occur naturally in mines, and artificial ventilation, which is promoted by means of large blow fans or furnaces, as a rule, is necessary to keep these gases sufficiently diluted to prevent explosions and to supply enough oxygen to the workmen for breathing purposes and for the burning of lamps. The state mining laws are very specific on the details of this artificial ventilation of mines and through the inspection system and the employment of mine examiners by the operators, a high degree of ventilation perfection is usually maintained. Small mines use natural ventilation with success. Certain mines in both states tend to produce fire damp, particularly southern Illinois, and many explosions occur; but, on the whole, mining men state that none of the mines in either state are particularly "gassy" (meaning fire damp). Unlike many British mines, no mines in either of these states have to be worked by safety lamps exclusively. White damp occurs in mines in connection with fires and explosions and the blasting of powder when the air supply is insufficient. It is always the result of incomplete combustion. It is the dangerous component of "after damp" which occurs

cers after fires, etc., and which has rather more effect on canaries or mice than upon men, so that the former have been used as test animals. The collections of this gas are insidious and the miner has no ready means of detecting it. Many Ohio miners suffer from it because of the constant shooting which is allowed during working hours. "Feeders" or "blowers" of illuminating gas, such as is used for domestic purposes, are little known in either state. Gasoline locomotives, such as exist in some Illinois mines, are not allowed in Ohio mines, principally because of the pollution of the mine air by the dangerous exhaust fumes characteristic of gasoline motors.

Miners usually work two in a room, or at least in pairs, in two or more rooms, and an especial feature of ventilation is to split the air currents entering the mine so as to pass fresh air in a method of even distribution to these work rooms. The laws require that no men be allowed to work in rooms or advancing entries more than 60 feet "ahead of the air," which means the distance from a definite air current of given volume. An effort is made to keep this air current equal to 100 cubic feet (150 in Ohio) per man per minute (with 50 cubic feet increase in "gassy" mines) and 500 cubic feet for each animal.

The temperature of mines is very constant. Shallow or wet mines are the coolest (temperature falling between 50 to 60 degrees at the working face). Mines between 300 to 600 feet deep have temperatures ranging from 60 to 70 degrees.

strata. Hence, the physical condition of mine air, with the exception of dust, is ideal for work. The chemical condition is rendered so through close obedience to the mine laws on ventilation.

Other Factors About Mining

Practically all mines are infested with rats or



Alternation of good and bad roof, illustrating the plan of timbering to support the "loose ground."

mice, sometimes both. In the absence of epidemics such as plague, they have little significance as a health hazard to miners. Insects in mines exist only as gnats or small flies, few in number and consequently of small menace. Mosquitoes invade drift mines for a few score of feet only. When sanitary privies are absent on the surface, which is the invariable rule, these and other insects are a great menace as carriers of disease from excrement to food in the homes of the miners.

Over nine-tenths of all miners work under ground. The eight-hour day is universal, although some company men may work as long as ten hours. Overtime is very infrequent. Small night shifts are employed at some big mines. Absenteeism averages about 10 per cent per day, and this percentage is about doubled for a day or two following pay day, which occurs twice a month. Injuries cause about 2 per cent of total absences. Labor turnover is much more pronounced in large mines and mining centers, and amounts to from 2 per cent to 30 per cent per month.

In the large producing districts in both states foreigners make up from 70 per cent to 90 per cent of the employees. These consist of eastern and southern Europeans. Colored employees are found in small numbers and then only in a few mines. Englishmen are numerous in some older districts.

An inquiry into the ages of 4,793 employees in Ohio and 13,889 employees in Illinois showed 0.6 per cent over 70 years of age in Ohio, 0.2 per cent in Illinois; 2.7 per cent between 60 and 69 in Ohio, 3.5 per cent in Illinois; 87 per cent be-



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Chute in panel longwall mine, in dipping seam of a coal deposit.
(Photo by H. I. Smith, United States Bureau of Mines.)

Slight seasonal variations occur. The air always increases in temperature as it passes through the mine. The humidity of mine air is invariably high, since even air carrying minimum amounts of water vapor into the mine, as in the winter time, still leaves the mine nearly saturated, because of moisture absorbed out of the coal and

tween 22 and 59 in Ohio, 89 per cent in Illinois; 9.7 per cent between 16 and 21 in Ohio, 7.3 per cent in Illinois.

It was found that for the past two years mines have been working very steadily and that during the past year shortage of railroad cars for hauling coal away constituted the chief cause for shut-



Three-room miner's cottage at Dewmaine, Ill.

downs. Occasionally epidemics of influenza limited a mine for a few weeks here and there. At the present writing, reports show that mining districts have been hit severely by the influenza epidemic—many mines shutting down entirely. Celebrations and funeral observances cause shutdowns of a day at a time at most mines several times a year, in some respects the large mines suffering the greatest frequency of these. While sickness could not be discovered as a cause, still the part-days taken off by great numbers of workmen are likely more in the nature of health necessities than is usually thought.

Transportation to and from mines is often very difficult, particularly in Ohio districts, and workers suffer hardships and loss of time in consequence.



Old-style, cheaply constructed and neglected company houses in which miners' families live.

The mine inspection system of the state is chiefly concerned with the preventing of accidents, especially explosions, fires, and asphyxiations. While the inspection system is plainly short of man power in both states, especially Ohio, this provision for coal mines redounds as much to the general health as to the prevention of the disasters

mentioned, since ventilation is a chief part of the inspection system.

Wages were good at the time of our inspection and with the present steady work, the pay envelope is large, while poverty and pauperism are practically unknown. In previous years, because of extensive strikes and because of the lack of demand for coal, most mines have been shut down for many months every year. In Illinois, the Springfield Survey in 1915 found that many mining families had great difficulty in making ends meet throughout the year. Evidence is to the same import in Ohio. Competition has undoubtedly been too keen in the past and coal sold too cheaply at the mine.

The Special Health Hazards

Dust.—This stands as the chief ban of coal mine air for the vast majority of miners, and, speaking from a health point of view, its varying composition from coal dust to granite dust is in proportion to its danger to health. Pick miners, machine men, and loaders (*i. e.* workers at the face), and tipple men are especially exposed.

Illumination.—Illumination is no longer a hazard for miners, since much of the bottom is supplied with electric lights and miners use the modern carbide lamps. Oil lamps are all but gone. Safety lamps, fortunately, with their imperfect illumination, are not required in our mines.

Heat.—Miners are not exposed to high working temperatures. Steam hoisting engineers may have undue exposures. Temperature in Illinois' deepest mine may run up to 80 degrees F., but usually workers are subject to less than 70 degrees F.

Cold.—The temperature of mines is invigorating. As long as workers keep active, the rather low temperatures, of themselves, are no hazard.

Humidity.—Dripping roofs, mud, and dampness characterize most Ohio mines. Dryness characterizes Illinois mines under foot, but the atmosphere is usually nearly saturated with moisture.

Fatigue.—Faulty postures and work of jarring, vibrative character, heavy lifting and straining at times, and a certain percentage of men ill-fitted physically for this work, are the chief hazards.

Hours of Work.—The eight-hour day, with very little overtime, obtains at mines. Some company men (laborers) work ten hours.

Infections.—The disposal of stools in the gob (refuse in the mine), as is the prevailing method, can be made safe. The extent to which coal mine dust may transport virulent germs, as from spitting, has not been investigated; the

hazard is probably insignificant. Diseases from animals, such as anthrax, glanders, and lockjaw, do not appear to exist. In the presence of the black plague, the rats and mice in mines would be a great menace. Injuries which miners receive are at least as free from secondary infections, if not more so, than in most classes of workers.

Electricity.—In addition to burns and shocks, and occasional electrocutions, the witnessing of brilliant electric flashes occasions some electrical ophthalmia—a painful swelling of the eyes which may persist up to several weeks.

Poisons.—These concern mine gases almost solely (see above). Sulphur occurs as pyrites and



Wash basins and shower baths in the large wash and change house at an Illinois mine.

in acid forms, the latter dissolved in water and often strong enough to eat holes in clothing or to cause ulcers in the eyes if gaining access to them.

Assuaging of Thirst.—Questionable water supplies in many instances render miners liable to typhoid fever, dysentery, and water-borne diseases. Alcoholic beverages are not permitted while at work.

Personal Hygiene.—Miners are in great need of instruction in matters of personal hygiene and the prevention of sickness. A large number of miners' illnesses could be curtailed by this means.

Wash and Change Houses.—Unlike Illinois, few mines in Ohio are equipped with wash houses or change houses. This feature is emphasized by a state law in Illinois for all industries. Here and there in Ohio a few men group together and build and equip a shanty. Private persons sometimes do this and a charge of 25 cents to \$1.00 per month is made for their use. The workers supply soap, towels, and lockers. Shower baths are frequent in Illinois and are considered the ideal ablution. In Ohio, empty powder cans, tubs, or basins are the rule. Hot

water is apt to be absent at electric mines. By tradition, miners bathe completely every day where opportunity is afforded. This means that in Ohio he usually does it at home. Often he builds a shed in his yard in which to wash. Statistics show that properly equipped wash houses at mines are used by upwards of 90 per cent of the employees. The absence of a place at the mine in which to wash up, after work, was commented upon by many physicians as a potent cause of the rheumatism, colds, and pneumonia which prevail among miners.¹

Clothing Provisions.—Where wash houses are present, provisions for keeping work clothing and street clothing are at hand. The ideal arrangement is a room partitioned off from the wash quarters, equipped with ceiling hooks (hangers) for work clothes and lockers for street clothes. Too great crowding was a common observation, and nails or pegs driven into the walls of a shanty was also common.

Water Supply.—Water for drinking purposes is usually not obtained at the mine but is brought by employees in their lunch buckets. Wells in the neighborhood of mines, often in very poor sanitary condition, are the usual sources of water for drinking purposes. In the malarial districts, for instance, the open-top wells with bucket and rope prevail. Scarcity of water is serious in some districts. Undoubtedly, much typhoid fever, dysentery, and other sickness in mine districts are due to lack of attention to the source of supply of drinking water. Hydrochlorid disinfectants could be provided at small expense at every mine.

Sewage Disposal.—Mines do not have toilet facilities below ground. The men at work simply use the gob piles. In dry mines there is little hazard from this practice, provided care is taken by each miner to cover his stool. In many mines portable trench buckets, or closets mounted on trucks, could be used. At the surface, where from a few to fifty men are always employed, the vast majority of mines provide nothing in the way of a latrine, much less a sanitary one, for the workmen. Instead, the latter usually seek the neighboring dirt piles, fields, timber or hillsides. On account of this lack, the flies and insects about mines and mining towns are special menaces as disease carriers. A standard privy for the surface workers at a mine could be constructed at very little cost.

Lunch Provisions.—Each employee at a coal mine invariably carries his own lunch in a specially constructed miner's lunch bucket, which

¹ The Bureau of Mines has made a special study of wash and change houses in Technical Paper No. 116.

is provided with a water compartment. The thirty-minute lunch hour prevails. Occasionally workmen at the surface may have opportunity to lunch at home.

Housing Conditions and Local Health Administration

The community has a large place in determining the diseases of miners. Very often the chief afflictions are favored by insanitary housing conditions, such as unsafe water supplies, sewage disposal, and food supervision as well as lack of efficient local health administration. The attitude in America concerning community health is invariably to "put it up to" the community itself, and as long as communicable diseases are not spread to neighboring communities to an extent great enough to raise protest, very little attention is given to health by any locality. Contrary to usual belief, the rural community is quite universally the most health hazardous place in which to live.

Housing Conditions.—The hygiene and sanitation of housing are important, since housing conditions involve about one-third of the normal day for the worker and most of the time for his family. While some mines are located in, or close to cities, mining towns, as a rule, are composed of a store or two around which very plain frame dwellings or shanty houses exist. While there are some model communities in each state, model in regard to building construction and ar-

angement and upkeep, safe sanitary standards as regards both water supplies and sewage disposal were nowhere encountered. The typical mine town consists of rows of dingy houses, all built after one or two patterns, often located on hillsides, with rows of privies located close to wells or draining toward the wells on the next

street. Rarely any attempt at garbage collection exists. Often small ditches of water act as open sewers. Screens for houses are usually provided by the occupant if present at all.

At practically all mines with company houses some workers have bought or are buying their homes. The company erects them for rent or sale



Entry way of a closely timbered longwall mine.

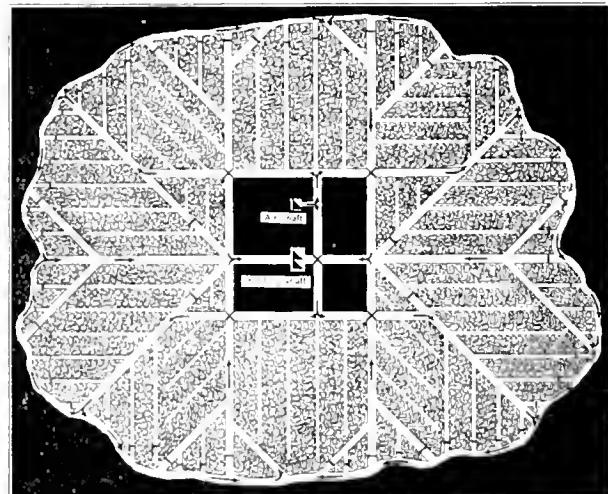
and they are sold on very easy terms to the miners. Here and there additional houses or a small town have sprung up around the company houses. Building syndicates have erected many miners' residences and rent them, receiving this rent by a check off the miner's pay at the mine. Great complaint was frequently heard of the lack of upkeep of them, even as to rendering them habitable. Miners' houses usually contain three to five rooms and are of the story-and-a-half type. Rentals average about \$2.00 per room per month. A great number of mining companies have built from four to twelve houses and then allowed the balance of the community to build up of itself.

(To be continued)

MEDICAL EXAMINER ANSWERS QUERIES

In the April issue of the *Ohio State Medical Journal* a new department is started which should be of great value in harmonizing the relationship of the physicians of the state to the workmen's compensation fund. In this department each month the chief medical examiner of the Ohio Industrial Commission will discuss medical phases of the subject and answer inquiries submitted by physicians. It has been found that many sources of dissatisfaction are due to lack of understanding of the details of the Act, including the making of reports of accidents and such follow-up reports as may be necessary.

The Ohio State Medical Association has for some time served as a clearing house of such information for the physicians and has acted as their representative in disputed matters. The new arrangement brings the physicians and the medical department of the industrial commission together.



Plan of longwall mine showing direction of ventilating current (After Swift).

rangement and upkeep, safe sanitary standards as regards both water supplies and sewage disposal were nowhere encountered. The typical mine town consists of rows of dingy houses, all built after one or two patterns, often located on hillsides, with rows of privies located close to wells or draining toward the wells on the next

EDUCATION IN INDUSTRIAL MEDICINE

AN ABSTRACT OF A PAPER PRESENTED BY A COMMITTEE OF CINCINNATI BUSINESS MEN.*
BY OTTO P. GEIER, M.D., CINCINNATI, OHIO

ON February 8th a group of some eighty citizens determined after thorough consideration of the subject, to raise a fund of \$100,000 or more to cover the expense of establishing and maintaining for a period of five years a Department of Industrial Medicine and Public Health in the University of Cincinnati. The Committee authorized by that meeting desires to place its plans before the public in the firm belief that they will lead individuals to contribute their small part towards the creation of this idea which seems to hold so much in promise for the commercial and industrial life as it relates itself to public health.

War Adds Its Weight to the Idea

The rejection by the army of more than one-third of those drafted, on account of physical disability, the tremendous opportunity for gathering accurate statistical data concerning the health of individuals in the armies of the Allies, and the fearful toll in lives from the pandemic of influenza—all these have brought home to the employer and to an awakened public the terrific economic waste of ill health.

Present Medical Teaching and Organization Inadequate

The discussion held on the evening of February 8th made it plain that medical teaching and medical organization, as well as methods of practice, have not kept pace with the tremendous industrial and commercial organization of society. It is evident that the congestion that occurs in the housing and working conditions in large cities demands a type of medical engineering and medical practice that is not now taught.

To meet the changed conditions, medical engineers—public health physicians and industrial physicians—must be specifically trained for their jobs of favorably affecting the health of large units of society. An intensive effort must also be made to socialize the viewpoints of all physicians

A plan for the establishment of a Department of Industrial Medicine and Public Health in the College of Medicine of the University of Cincinnati, to provide—

Facilities and instruction for graduate and undergraduate medical students in industrial medicine and public health, to be taught in cooperation with the industries and the local public health agencies, leading to degrees in industrial medicine and public health, and to provide—

For cooperation with the National Safety Council and Employment Managers' Association in arranging courses of study.

and to improve their economic status. A new field of endeavor for physicians has arisen. Corporations fortunate enough in the past to find properly trained, socially-minded medical men have found them invaluable in their Personal Service Departments. Nearly a year ago a group of citizens of Boston and vicinity, recognizing this same need, raised a fund of \$125,000 for a period of five years, to establish a

course in industrial hygiene at the Harvard Medical School. The responsibility for the correct conduct of this new project was vested by Harvard University in the Governing Committee on Industrial Hygiene, made up of five representatives chosen by the faculty, and an Advisory Committee of three representing the contributors. Some such plan of making close contacts with the industries and securing their assistance in further elaboration of these plans will be followed here in Cincinnati. In a number of other medical schools similar courses are under consideration.

Cincinnati Knows How to Teach

We here in Cincinnati, in our engineering college, have originated and demonstrated the value of the cooperative method of teaching. Cincinnati is prepared, therefore, in this new venture to secure, through the application of this cooperative spirit, a large return for its investment in this new department. Our plan will return good dividends to the donors, the college, the students, and the community.

Personnel.—A director and such assistants who have the knowledge and the facilities, in cooperation with the industries and the public health agencies, to teach industrial medicine and public health will comprise the personnel.

As a minimum the new department will require the full-time service of an expert physician in industrial conditions and occupational diseases,

*A committee appointed to consider a plan for establishing a Department of Industrial Medicine and Public Health in the College of Medicine of the University of Cincinnati.

a woman physician trained in sanitary science, a safety engineer, an employment and industrial relations man, a statistician, and the necessary laboratory workers and clerks. The department will also avail itself of the services of men in the medical department and teachers of other colleges of the University, as well as men in industry qualified to teach special subjects, thus enhancing the value of the course and reducing its overhead costs. It is hoped to cooperate with the laboratory personnel of the United States Public Health Service stationed at Cincinnati, and the other local health agencies.

Requirements.—The combined personnel must be familiar with the health problems of industrial institutions and the community. The staff of the department must understand the industrial, medical and surgical problems—sanitary standards of plants, occupational diseases, the subject of fatigue, general safety work; the principles of medical supervision of employees with special emphasis on physical examination, proper placement, dental hygiene and nursing service; it must have a real interest in the broad question of personal relations in industry; it must understand modern employment methods and their relation to health questions; it must be able to assist in the installation of proper employees' records, including absence, lateness, illness, etc.; it must stimulate an interest in recreation, and in food problems; it must understand the general principles and operation of cafeterias and commissaries, as well as the organization of establishment funds (Mutual Aid Associations).

These measures will be taught both by lectures and laboratory work at the medical college and through field investigations by the staff in the plants themselves.

The field work will consist of sanitary inspections of plants and of research into the special occupational hazards. Physical examinations of certain workers will be made and health instructions given to the workers. In times of epidemic the staff and assistants will be able to assist the health department in the control of communicable diseases. The students will have demonstrated to them the proper treatment of injuries and ailments. The subject of lost time from illness, injury, or other causes will be definitely related to the man's productivity and earning capacity. Scientific medicine and surgery will be continuously related to economic life.

The broad question of the existence of unhygienic working and factory conditions—the matter of inadequate ventilation, lighting, drinking water, toilet and locker facilities, as well as facilities for obtaining wholesome food, will be studied along with the occurrence of dust, fumes, gases, poisons, overcrowding, unnecessary noises, and excessive variations in temperature and humidity, some of which produce an impaired vitality and low output.

The subject of fatigue, with its relation to bad vocational placement, monotony, speed, and overtime will be weighed in as factors of inefficiency and low earnings.

All of this training will be for the purpose of better fitting the doctor to his job; to make of him a social and medical engineer as well as a physician; to make available to the mass of working men the best surgical and medical skill; to intensively educate the worker as to the dollars and cents value of good health and personal hygiene; and lastly, to give the employer accurate knowledge of the social, economic, and health condition of the worker, otherwise unobtainable. There will come to the employing class interest

IF You are giving any serious thought to the labor questions of the day:

If you believe that some concerted, intelligent effort should be made to prevent a wave of radicalism;

If you are interested in creating better relations between employer and employees;

If you recognize that ill health of body and mind are a drag on the commercial life, the industries, and the community;

If you know that 75 per cent of the economic waste from accidents is preventable;

If bad home conditions leading to disease are detrimental to the worker's value;

THEN

You will carefully read these few pages, for herein is set forth a definite plan to raise the standard of living and improve industrial relations

(1) through better community health;

(2) through safer and better working conditions;

(3) through guarding the health of the workers at the plants;

(4) through better attention to the injured.

in and greater appreciation of the value of community health and of the need for the extension of public health control.

The plan will supply the health authorities with assistance in the control of communicable diseases and supply statistics as to the occurrence of sickness not now available. A natural outgrowth of such work will be the establishment of night, diagnostic clinics for the determination of occupational diseases. Knowledge of and cooperation with the organized health and relief agencies of the city will result from the training.

Such a course will not only graduate doctors of public health and industrial medicine, but will mold opinion in behalf of preventive medicine; it will be a check on the commercializing of the science of medicine; it will discourage quackery, both medical and dental, and reduce the consumption of patent medicines, on which this country now expends a half billion dollars yearly. It will tend to democratize and socialize medicine—make the latest diagnostic facilities available to all of the profession instead of the favored few. It will raise the standards of medical practice and thus favorably affect the health of the mass of people. It will produce a group of men who can intelligently lead in sound medical and health legislation, and hasten the day when such social measures as compulsory sickness insurance can be intelligently discussed by a sufficient number of socially minded physicians and surgeons.

Plan of Instruction

As a tentative plan, the course of instruction will occupy one college year of approximately eight months. The first term will begin in Octo-

ber, 1919, and will be open to graduates in medicine.

Like the cooperative course in engineering at the University, part of the instruction will be given at the medical college and part in the industries. Unlike the engineering course, the teaching staff will work with the students in industries and assign work to them there. Studies will be made of the conditions in the factories and findings reported to the heads of industries.

Subsequently, students will be assigned to plants to work in cooperation with the plant physicians, the plant dentists, the plant safety engineers and employment managers.

Finally, each student who qualifies for the work will be assigned to some plant to serve an internship and from this time on it is expected that he will be remunerated for his services.

The National Safety Council has organized a course of fifteen lessons covering the fundamentals of safety and sanitary principles, these lessons being delivered by experts, of national reputation, from all sections of the country. As a part of this plan, an active safety campaign is to be undertaken and a local council of the National Safety Council created for Cincinnati. This course of fifteen lectures, extending over a period of fifteen weeks, will be given at the University at night.

These lectures will be available to the students at the medical college and to all of the safety engineers of the various plants in Cincinnati, as well as to the cooperative students in engineering.

The safety engineer employed under this new department would become the secretary of the local council of the National Safety Council. As part and parcel of his teaching program at the University and his field work in the industries, he would make safety inspections for the plants

HEALTH AND WEALTH CONSERVATION

Good Home Conditions.—Heredity, proper food, proper housing and living, teaching of personal hygiene.

Good School Conditions.—Physical examinations, remedying of defects, clinics.

—HEALTH EDUCATION BY SCHOOLS.

Good Working Conditions.—Hours of labor, sanitary shops, good relations between employer and employed, sufficient wage, medical and surgical care.—HEALTH EDUCATION BY EMPLOYER.

Good Community Conditions.—Clean food, milk, water: protection against contagion: sewage and waste disposal.—HEALTH EDUCATION BY HEALTH DEPARTMENT.

Good Medical Colleges.—To keep up the supply of highly trained physicians, who along with dentists, nurses, hospitals, institutions, and clinics, care for ill health since the first four agencies fail to produce 100 per cent results.

The Committee believes that too little public attention has been given to "Good Working Conditions" and that the plan proposed will care for this oversight while favorably affecting the fifth factor, "Good Medical Colleges."

A TENTATIVE CHART OF THE WORK OF THE
COURSE IN INDUSTRIAL MEDICINE AND PUBLIC HEALTH

COOPERATING WITH THE

LOCAL CHAPTERS OF THE NATIONAL SAFETY COUNCIL AND EMPLOYMENT MANAGERS' ASSOCIATION
EXTENSION WORK

EXTENSION WORK

Public Service and Association Work

Director active in the work of Public Health Division of Council of Social Agencies

Assists health officers in event of epidemics

Gathers medical statistics from industries

Acts as executive secretary of Local Employment Managers' Association

Acts as executive secretary of Local Chapter of the National Safety Council

Through local chapter, renders assistance in general accident prevention campaigns

Service to Local Plants

Special research

Surveys of sanitary conditions, occupational diseases, etc., at the request of the plants

Installs medical departments

Prepares health leaflets

Encourages the installation of Employee's Service Departments

Advises and consults with employment managers

Makes special investigations and recommendations

Organizes employment departments

Confers with management as to policies

Advises and consults with safety engineers

Organizes accident prevention work

Makes investigations and recommendations

Gives course of fifteen lectures on "Accident Prevention" to safety inspectors, etc.

Gives course of eight lectures on "Industrial Relations" to plant executives. (All lectures available to engineering students and others interested.)

The PERSONNEL

Medical Director

(in charge of course)

Woman Assistant

Research Worker

Part Time Dentist

Employment and Industrial Relations Man

Safety Engineer

National Safety Council

(furnishing speakers of national reputation)

TRAINING INDUSTRIAL PHYSICIANS

Teaching at the College Cooperative

Teaching in Medicine

Places students in industrial medical departments and conducts research work in the plants with them

Supervises students during industrial internship.

Places students in employment departments and teaches them how employment records are kept and filed

Works with them in organizing "Mutual Aids."

Has students work with him in investigation and organization of accident prevention work

Students have the advantage of the circulating library and information bureau maintained by N. S. C. resulting from experience of its 4,000 members

and assist them in organizing safety work. The exhibits, slides, and moving pictures of the National Safety Council would thus be made available to Cincinnati. School and public safety work will be encouraged.

Industrial Relations Course for Executives.—In the same way the Safety Council has a course of eight lectures, extending over eight months, given by leaders in industry, especially covering the large, broad problems of industrial relations. These lectures would be made available to the medical students and to the employment managers of the various plants.

Cooperation with Employment Managers

In planning the new department, it is desirable that the man engaged to teach employment methods and industrial relations shall be selected as the secretary of the local Employment Managers' Association and that he shall arrange for and conduct a series of lectures providing an employment course for the Association.

MEDICAL CARE FOR RETURNED SOLDIERS

The United States Public Health Service has established fourteen districts through which will be handled the applications of discharged soldiers, sailors, marines, and nurses for medical service and admission to the general hospitals of the Public Health Service. A supervisor has been placed in charge of each district.

The district supervisors are charged with the administration of all matters in their districts pertaining to the admission of claimants to hospitals. It is the aim of the Public Health Service to provide medical treatment at the expense of the government for all former service men and nurses who can trace their sickness or disability to disability incurred while in the service.

Publicity is being given the work through government bulletins and other publications with the purpose of informing all former soldiers, sailors, marines, and nurses of their privileges. Applications for medical service or admission to a hospital should be addressed to the Supervisor in Charge, of the district in which the applicant resides. The application may be forwarded through the local chapter of the Red Cross or made direct to the supervisor of the district in which the claimant resides. An office has been opened in Chicago for the Eighth District, at 512 Garland Building.

LEAD POISONING—A BRIEF ON THE SYMPTOMS, DIAGNOSIS, AND TREATMENT

BY R. P. ALBAUGH, M.D., DIRECTOR, DIVISION OF INDUSTRIAL HYGIENE, OHIO STATE DEPARTMENT OF HEALTH, COLUMBUS, OHIO*

LEAD is the most frequent and important cause of industrial poisoning. It is used in its various forms in more than a hundred industries, and may occasionally be employed in every industry, sometimes under fanciful names. It is important that physicians inquire carefully as to possible industrial exposure to lead whenever certain ill-defined states of ill health present themselves. It is important also, that industrial physicians familiarize themselves with industrial processes in their plants, for unless the physician has a familiarity with such processes, the general designation of a patient's work may not indicate any exposure to lead.

Mode of Entrance Into Body.—Absorption of lead and lead compounds occurs by the inhalation of dust laden with lead, which finds lodgement in the respiratory tract, and, mixed with saliva, reaches the stomach; by way of the digestive tract by means of soiled hands, contaminated food, tobacco, etc., and in the form of vapor (finely divided oxid of lead), and as dust through the respiratory organs. Absorption probably also occurs in isolated cases through the skin. There is a great difference in susceptibility of different individuals to lead poisoning, and females are considered more susceptible than males.

Symptoms.—The symptoms of lead poisoning are varied, and in describing a typical case it should be remembered that numerous cases follow an irregular course. The disease usually appears in the chronic form and follows the absorption of minute quantities of lead over a protracted period of time. The beginning of chronic lead poisoning is insidious, with disturbances of the general health, a sense of weakness, decline of bodily strength, headache, constipation, eructations, distress in the region of the stomach, metallic taste, and fetid breath. The blue line, caused by the deposits of sulphid of lead in the gum tissue near the margin, may or may not be present. Lancinating pains, usually paroxysmal, are common, especially in the extremities, and tremor is almost constant. Typical are the paralyses, generally affecting the extensor muscles of the forearm, resulting in wrist drop. Paralyses of the extensors of the lower extremities may occur (foot drop), and, more rarely, of the flexors. There is an in-

crease of blood pressure and often a basophilic degeneration of the red blood corpuscles in severe intoxications. Nervous and mental symptoms are not infrequent and death may result from disease of the brain (saturnine encephalopathy).

Cases accompanied by severe abdominal colic are usually considered acute. The colic is usually preceded by obstinate constipation and perhaps also by loss of appetite or an unpleasant metallic taste. The colic comes on suddenly, usually with severe pain in the vicinity of the umbilicus. The abdomen is tender to the touch, although occasionally relief is obtained by pressure. Vomiting may or may not be present. Severe pain may continue after the bowels have been relieved by cathartics, and even when there is diarrhea. The pain is somewhat relieved in the course of two or three days, but painful sensations usually remain which are aggravated by pressure.

Diagnosis.—The term lead absorption should be abolished. It is misleading. It has no more standing than would the term alcohol absorption. It is, unfortunately, being used as a blind to cover up real lead poisoning. Lead poisoning exists not because there is lead in the system, but when it is not being eliminated and there are symptoms of intoxication because of it. The diagnosis may be simple, or, owing to anomalous conditions, it may be difficult. The blue line on the gums and especially the demonstration of basophilia in acute lead poisoning are of value and occur so rarely under other conditions as to be negligible. Add to the above, anemia and any of the common symptoms of intoxication (headache, loss of appetite, cramps, etc.), and the picture is complete. Acute lead poisoning may be confused with appendicitis, and, if fever is present, both should be suspected in the lead worker.

Treatment.—The treatment is largely symptomatic. Exposure should be discontinued at the slightest symptoms. Morphine may be given to relieve colic, and enemas and cathartics to relieve constipation. Potassium iodid has been found useful in chronic cases, and, in paralysis, electrical treatment, baths, and massage. The electrolytic bath has been quite conclusively proved as being incapable of removing lead from human organs and tissues, but its psychical value cannot be doubted. More important are carefully regulated standards of industrial and personal hygiene.

*This article is the first of a series by Dr. Albaugh on the common industrial poisons.

SHORTER HOURS IMPROVE HEALTH OF WOMEN WORKERS

The report of the Illinois Industrial Survey Commission which was created by an Act of the 1917 Illinois Legislature "to make a complete survey of all those industries in Illinois in which women are engaged as workers, with especial reference to the hours of labor for women in such industries," "and the effect of such hours of labor upon the health of women workers," has just appeared.

The Commission, which was appointed by the Governor of Illinois, consisted of two representatives of women in industry, two representatives of the employers, two physicians, and a chairman, who happened to be a physician.

The Commission's report is based on the intensive studies made by its own investigators in some of the industries of Illinois and a study of similar investigations elsewhere. The report details a discussion of the general tendency to shorten women's working hours as shown by study of the laws of various states, and by an analysis in Illinois itself of the employers' reports and the hours worked in their establishments. From this phase of the work the Commission interprets the tables as definitely indicating a trend in Illinois, as well as in other states, toward a shorter working day and week for women.

The statements of industrial physicians employed by numerous large concerns in the city and state were carefully analyzed. These statements are based mainly on opinions which, however, fairly well agree in the belief that a shorter working day and week is decidedly beneficial to the health of women workers.

Questionnaires Sent to Employers

Large numbers of questionnaires were sent out to employees and many personal investigations of employees in the homes were made by the investigators of the commission. One of the most interesting facts brought out by this study was what the Commission terms a "concentration of bad conditions." Workers who stand, these being mainly personal service and trade workers in hotels, department stores, etc., have worse conditions than those who sit, both as regards hours per day and per week. Of the standing workers there was a tendency for overtime to be less and for the lunch period to be shorter.

But perhaps the most interesting phase of the Commission's report deals with the study of fatigue in relation to production under varied hours of labor. Following the principles of study of industrial fatigue as outlined by Lee and Florence, it is assumed that, when all other factors can be kept constant, diminished production indicates increased fatigue of the worker. Although this is a recognized method of study, considerable care has to be exercised in eliminating possible variants, such as difference in factory management, changes in hygiene or ventilation, questions of food, etc., which might very easily change the output without any definite relation to the element of fatigue. In the few intensive investigations carried on by the Commission all such possible variables were carefully investigated and from output itself no conclusions were drawn concerning fatigue unless all such variables had been made constant.

Some of the studies reported by the Commission seem to have the accuracy of a scientific experiment. For instance, the study of the soap industry where the women in a packing room were studied under a ten-hour day and later under an eight and one-half hour day, shows a definite increase of about 10 per cent of output per hour under the eight and one-half hour day. Under the fifty-five hour week the average production per day was 42.8

cases while under the forty-eight hour week the production was 45.5 cases per day. Furthermore, production under the shorter hours held a steadier level than under the longer hour schedule, and at the end of a ten-week period production seemed to indicate a reserve of energy in the eight and one-half hour worker which had not been observed in the same women working ten hours a day.

In a corset factory study of shortened hours showed an acceleration of production such as to make a shorter week actually more productive than a longer. In a large garment factory buttonhole workers were studied under conditions which could be kept absolutely constant, and it would seem that in this department the production rate has increased so much that total output under a schedule five hours less is equal to and even greater than production under the longer hours.

Work Conditions at Canning Plant

One of the interesting facts brought out in the study of a canning room in the beef industry was that relief of monotony even in a ten-hour day by a change of occupation shows a lessening of fatigue and an increase in production. In other words, given the same group of women working ten hours a day, if some are allowed to shift their occupation from packing beef to waiting on table a part of each day, there is a corresponding diminution of the fatigue element as measured by production.

The great argument around which much of the opposition to reduced hours for women workers has arisen has been in the seasonal industries. Evidently the study of this problem caused difficulty to the Commission and yet their investigation in the canning industry would seem to indicate that when it is possible to regulate and control other conditions of factory management, the output even in the short season trade is increased by the diminution of fatigue associated with shorter hours.

In the hat industry it was necessary for the Commission to compare two different industries, a method of procedure always open to opposition in the study of fatigue. And yet it would seem from the tables and charts that in comparing two groups of workers of about the same training and experience, there is a definite, earlier diminution in output in the factory in which long hours are worked than in the short-hour factory. The height of the curve of production is reached sooner in the long-hour factory but maintains its level for a much shorter period, and toward the end of the season there is a much more rapid drop. These conclusions follow whether the study was made of the entire working force or of a selected group of experienced workers.

Other work is reported in relation particularly to night shifts and to accidents but without any conclusive value. The report, which is signed by all the members of the Commission with the exception of the two representatives of the employers, offers an interesting document in the application of scientific methods to the study of industry. While by no means as deep or thorough a piece of work as the Commission itself says it would like to have produced, it apparently represents careful investigation and weighing of evidence before conclusions were drawn.

The whole question of industrial fatigue is becoming of more and more importance, not only to capital and labor but to society as a whole. It is not merely a question of health for the individual worker; it is largely a question of health for the community.

The minority report signed by the two employer members of the Commission indicates that an open mind toward the whole problem will go a long way toward a just solution.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C. E. A. WINSLOW, DR. P. H., *Editor*

THE NATION'S HEALTH

THE syllabus of the modern public health movement prepared by Dr. Goldwater for this issue of MODERN MEDICINE is a striking reminder of the extent to which this movement has grown and of the width of the field which it now covers. A survey of the topics included in the program and a consideration of the principles of bacteriology and physiology, of chemistry and engineering, of economics and polities, which must be applied in order to carry it into execution, makes it clear that the health officer of the future needs training of a wide and fundamental character.

A comparison of the topics listed by Dr. Goldwater with the curriculum of any Class A medical school will make it equally clear that no readjustment of the medical curriculum can bring within the compass of four years what a man needs to know in order to practice both medicine and public health.

It is this condition which has led to the development of special courses leading to the certificate in public health and the doctorate in public health, designed to prepare for the adequate discharge of the complex and exacting responsibilities of the modern health official. The certificate, according to the recent report of a committee from the leading eastern universities giving higher degrees in public health, represents one year of special training for either college or medical graduates; the doctorate represents two years of special training for men or women who already hold the medical degree. The physician who has pursued one or two years of such special study has undoubtedly acquired the ideal preparation for administrative responsibility in this department of our civic life.

Army experience has awakened in thousands of young physicians the desire to serve the community in this field and the willingness to make adequate preparation for such service. There was never so excellent a chance to obtain at least a fraction of the competent health officials we so

sorely need. The one thing that is essential if this hope is to be realized is a demand from the public that when positions in the local and state health service are to be filled they shall be filled by the men who have been trained for such work and that such men when they "make good" shall be paid salaries commensurate with the service which they render.

The members of the medical profession, if they will, can exert a compelling influence for the improvement of the personnel of the state and local health service. The physician, through his close personal relations with his patients and his general position in the community, has a power far greater than that exerted by the average member of any other professional group. The work of the health authorities touches him more and more closely every year and it is of essential importance to him that his municipal and state health departments shall be honestly and efficiently and intelligently administered.

Where the physicians in any community are actively interested, collectively and individually, in the problem of an efficient public health service, few politicians care to run the risk of an unfit appointment. If there is a local physician who by special training or experience is fitted for the position of health officer he should receive the position. If not, the administration should be persuaded to go outside for a physician experienced in public health if he can be found, and, if such a man cannot be found, for a non-medical man who is trained in public health and can utilize the services of local physicians in communicable disease control, clinic service, and the other strictly medical phases of his work.

In any case however the members of the local medical profession should be active and firm against the appointment of a health officer whose only qualifications are the possession of a genial personality, a gift of fluent speech, and a friendly connection in the world of polities.

TYPHOID IMMUNIZATION OF HOSPITAL NURSES

BY HAROLD B. WOOD, M.D., DR.P.H., ALBANY, N. Y., LATE ACTING EPIDEMIOLOGIST, NEW YORK STATE DEPARTMENT OF HEALTH

TYPHOID infection of nurses is not of uncommon occurrence. The direct transmission of typhoid fever from patients to those who are acting as nurses is one of the greatest factors in the spread of typhoid fever. Even trained nurses frequently become infected by their typhoid patients, many of them contracting the disease in spite of their care in handling infectious material. Those who have charge of the training of nurses in hospitals instruct nurses in the care of the sick, but it is apparent that sufficient caution is not used to guard the nurses against typhoid fever. That further precautions need to be observed is shown by the fact that in New York state the case rate of typhoid fever among nurses in hospitals for the past three years has averaged approximately ten times the general typhoid rate for the cities of the state. Among 2,900 nurses in hospitals there were thirty-four cases of typhoid fever since the beginning of 1916. The typhoid case rate for the up-state cities of New York state in 1916 was 39.3 per 100,000 population; the typhoid case rate for nurses in the hospitals reporting has averaged 390.7. The importance of the problem of the elimination of this typhoid fever is apparent, since its prevalence markedly decreases hospital efficiency and adds unnecessary expense, suffering, and danger.

110 Superintendents Express Opinions

To collect certain data in regard to the prevalence of typhoid among hospital nurses and to learn the attitude of hospital superintendents toward obligatory typhoid immunization, a questionnaire was recently sent to the superintendents of 254 hospitals in New York state outside of New York City. Replies were received from 110 hospitals, and these may probably be regarded as representing average conditions and intentions in the northeastern part of the United States. These hospitals had just 2,900 nurses, varying between

PROTECT ALL HOSPITAL EMPLOYEES

Typhoid immunization should be required of all hospital employees.

Hospital superintendents favor obligatory immunization against typhoid, as a health safeguard for their nurses.

Typhoid is ten times more prevalent among nurses than among the general public, and hence is a discredit and a detriment to efficient hospital management.

Nurses do not receive sufficient instruction in personal hygiene and self-protection against typhoid, whereas immunization will effectively prevent typhoid fever.

two and one hundred and fifty nurses each, or averaging about twenty-six nurses to each hospital. At this rate, there are nearly seven thousand nurses now serving in the hospitals of New York state. No reply received made any reference to the number of nurses who had gone to the war, or mentioned whether the statement given was the regular staff or a reduced figure.

In the hospitals furnishing the data, typhoid fever infected seven nurses and caused one death in 1916; in 1917, there were twenty-four cases with one death among the nurses, and in 1918 there had occurred three cases before December 1. Undoubtedly, nearly all these nurses became infected within the hospitals and probably from the patients they were treating. A few exceptions are known to have occurred. This summary does not include the outbreak of typhoid fever in another hospital in the central part of the state, in which one kitchen girl and nine nurses contracted typhoid from milk coming from a farm upon which a health officer later discovered a case of typhoid fever. The superintendent of this hospital did not reply to the questionnaire. These cases, with the others, could have been prevented by the adoption of obligatory immunization.

44 Per Cent of Nurses Immunized

Data in regard to the number of nurses immunized during the past two years were asked in the questionnaire. The superintendents replied that 1,278 nurses, or approximately 44 per cent of the nursing staffs, had been immunized. Forty-seven superintendents admitted they had not immunized any nurses, even in view of the fact that six months previous to the sending of the questionnaire the attention of the value and need of typhoid immunization of nurses had been brought to their attention by the State Department of Health. In the hospitals where no nurses had been immunized there were 1,845 nurses, one of whom was ill with typhoid at the time the report

was made. In another of these hospitals there were twelve cases of typhoid among the thirty-five nurses in 1917, and no immunizations had been done. Twelve of these forty-five hospitals expressed themselves as favorable to the proposition to make typhoid immunization of nurses obligatory, yet had not availed themselves of the opportunity.

In thirteen hospitals all of their 513 nurses had been protected against typhoid fever by immunization.

The question was asked, "In your opinion, is it feasible to make protective vaccination against typhoid a definite requirement among nurses in your institution?" Fifty superintendents voted definitely "yes" and twenty-four declared "no." At three hospitals typhoid immunization of nurses is compulsory; in three it is required of nurses while taking care of typhoid patients. One superintendent thinks it advisable for nurses who attend typhoid cases, two are in doubt, and two say it is not necessary. One remarks that it is not advisable, two declare all nurses consent, five give no reply, and two dismiss the thought by saying they give little attention to the subject.

Of the hospital superintendents who hold opinions, fifty-nine declare in favor of hospitals requiring nurses to become immunized against typhoid fever, some being very emphatic. Doubtless some have been led to this conclusion because their nurses have developed typhoid fever in past years. Although typhoid vaccination is recognized by the entire medical profession as the most effective method for preventing typhoid fever, twenty-nine superintendents are opposed to making it a requirement for nurses undergoing their hospital training. Four desire to make the protection optional with the nurse.

Opinions Are at Variance

The hospitals favoring the measure are the larger hospitals having nursing staffs varying between six and one hundred and fifty, averaging thirty-one nurses; the hospitals opposing average twelve nurses, with staffs varying between two and thirty nurses. It is interesting to note that those hospitals opposing typhoid immunization had had relatively, just twice as many cases of typhoid among the nurses as had the hospitals favoring the protective vaccination. The reasons given for the assumed attitude of opposition to the requirement of immunization included the following statements: "Impossible"; "not absolutely necessary"; "we use all precautions"; "we have had no typhoid" (in a city notorious in the past for its typhoid!); "too short a course"; and "difficult to get applicants and cannot make all the re-

quirements we would like" (in view of the circumstance that last year half of the nurses in this hospital had typhoid fever). The statements from the superintendents favoring obligatory immunization are equally illuminating: "Have done it for the past three years"; "give it to all except those who positively refuse"; "will make it a definite requirement"; "require it of all nurses taking typhoid cases"; "all consent"; "yes, most necessary"; and "yes, in every institution."

Preparedness Is Best Policy

A reply to these expressed convictions would state that no method of social or commercial development is popularly adopted unless well advertised. Any method or act which conserves human health and human efficiency is a practice worthy of universal adoption. The fact that typhoid immunization prevents typhoid fever and helps to avoid suffering, death, and lost efficiency needs no further proof or discussion. Measures of preparedness to prevent or overcome dangers which may arise are advisable to adopt. The fact that a community has had no typhoid in the past is no proof that a sudden epidemic may not occur any time from an imported carrier. This accident happens frequently. Milk-borne typhoid outbreaks are not of uncommon occurrence, and hospitals should take all precautions to meet these possible outbreaks. One hospital in New York state last summer had its regrettable experience with an infected milk supply. After the typhoid outbreak has occurred it is too late to consider the protection of the hospital staff. After a nurse is regularly assigned to the care of typhoid patients, it is equally too late. Numerous instances are known where probationers have substituted for the regular typhoid nurses just for an evening and have become infected by their lack of care in the handling of infectious material and the sterilization of their hands. Instances are known where nurses have handled bed-pans and, without even washing their hands, have carried trays of food. The danger that almost any nurse or attendant in a hospital may become infected by typhoid is not remote. No hospital course is too short to permit the giving of the necessary protection to the nurses, unless it be less than two weeks.

Too Many Nurses Stricken

The danger of typhoid infection of nurses exists not alone within the hospital in which they receive their training. When they are later called to attend all kinds of medical cases and to live under all kinds of conditions in every locality, the opportunity of contracting typhoid fever from

their patients, or from typhoid carriers or through the agencies of flies, foods, milk or water, is great; it is also evident. During 1917 the occupation of the person was recorded on 708 reports of typhoid cases in New York state, and of these persons six were professional nurses and three were physicians. There are 16,800 nurses registered in the state. If the same proportion of cases in nurses to total given occupations applies throughout the state the case rate for the 16,800 registered nurses during 1917 was nearly three times that of the general public: 142.8 for these nurses, while 52 per 100,000 was the general typhoid case rate for the state outside of New York City.

Nurses Unaware of Hidden Dangers

Typhoid immunization can most conveniently, economically, and advantageously be done when the nurse begins her term as probationer. The danger of her contracting the disease after leaving the hospital, the precautions which she necessarily must use in handling typhoid patients, and the fact that she may become a potential typhoid carrier if she is not always extremely careful in her methods, should be explained to her. Typhoid immunization will prevent her contracting the disease but will not prevent her becoming a possible carrier. Extreme care in the handling of material infected by typhoid germs and the careful scrubbing of her hands after handling such material will prevent her becoming a dangerous typhoid carrier. If the subject of immunization is left to her option, the nurse, not realizing the actual dangers of typhoid and the importance of adopting every known method to prevent it, will, in most instances, neglect to obtain the protection which it is her duty to select. The need of extending the typhoid immunization to all hospital employees is shown by the fact that the baker of one of the largest hospitals recently contracted typhoid. He was undoubtedly infectious for some days before he believed himself ill.

Typhoid immunization should be required of every employee of every hospital or public institution and should be given when the employee begins service or training. It is feasible, it is practical, it is protective; and it has been voted as an advisable obligatory measure by two-thirds of the superintendents of the hospitals in New York state.

MISSIONARIES PROVIDED MEDICAL SERVICE

The Methodist Episcopal Church has established a medical department in its missionary branch which will supply medical attendance to missionaries either abroad or at home. In future each individual entering upon a life of missionary work will be subjected to a physical exam-

ination to determine whether the candidate is in sound health. Since the church invests from \$20,000 to \$50,000 in each missionary during his life time, the new plan has been devised as a means of knowing whether the candidates are "good risks." The department has been placed under the supervision of the Board of Foreign Missions. J. G. Vaughn, M.D., formerly of Nanchang, China, is executive secretary of the new department. He has established a headquarters at the offices of the Missionary Centenary, 111 Fifth Avenue, New York City.

NURSES PAY HOMAGE TO LEADER

To the late Miss Jane A. Delano, who died in France, April 15, at the American Base Hospital No. 8, at Sauvigny, the nursing fraternity pays homage as the leader in recruiting more than 30,000 nurses under the direction of the American Red Cross, for service with the Army and Navy after the United States entered the world war.

Miss Delano served three times as president of the American Nurses' Association and was for several years was the head of the directorate of the *American Journal of Nursing*.

She was chosen for chairman of the committee in charge of developing a nursing reserve for the Army Nurses Corps in 1906, at the time the American Red Cross entered into an agreement with the American Nurses' Association to create such a reserve. She continued with the work till the time of her death.

She was born at Watkins, New York, in 1862. Her father was killed in the Civil War, and she was reared by her grandfather, a Baptist clergyman.

AID CHILDREN—ABATE CRIPPLE PROBLEM

Among 4,186 cripples in the city of Cleveland, it is learned that one-eighth of them incurred their handicap through infantile paralysis, while among children, the proportion is one-third. These are two of the outstanding facts disclosed by a survey of all the cripples of the city, in 1916, a report of which has been published by the Red Cross Institute for Crippled and Disabled Men, under the title, "Education and Occupations of Cripples, Juvenile and Adult."

The survey was reported by Miss Lucy Wright, formerly general superintendent of the Massachusetts Commission for the Blind, and Miss Amy M. Hamburger, formerly associate director of the Social Service Department of the Massachusetts General Hospital. The survey was conducted under the auspices of the Welfare Federation of Cleveland.

An effort was made to give practical guidance in formulating a community plan for promoting the welfare of cripples. Eight general conclusions are presented.

"The problem of the crippled population," it is stated, "is first of all a problem of child welfare. Although adults were more numerous than the children—more than three times as many—a fourth of the crippled population were not only under the age of fifteen at the time of survey, but a third of the adult cripples became disabled while under the age of fifteen. Thus a total of 40 per cent of the whole group were disabled in childhood."

"As a children's problem it is essentially a medical-educational one."

Two principal recommendations are given: First, that adequate provision be made for medical-educational care of crippled children. Second, that measures be adopted for safeguarding the interests of adult cripples.

THE FOURTH GREAT PLAGUE—DEFECTIVES

BY MARIAN K. CLARK, CHIEF INVESTIGATOR, BUREAU OF INDUSTRIES AND IMMIGRATION, NEW YORK STATE INDUSTRIAL COMMISSION

THE old time fallacy that "all men are born equal," with which civilization has been satiating its uneasy conscience for centuries, is as unjust and deluding to humanity as a mirage that lures the unwary traveler to certain destruction.

Whether it be the political insurgent or the socialistic "uplifter"; the demagogic agitator or the bolshevist destroyer; the religious enthusiast or the pessimistic agnostic, when they advance the false premise that "all men are born equal," their arguments one and all spell defeat from the start because they have no basis for a logical demonstration of their thesis, and no foundation upon which to rear the structure of their dreams.

There can be no equality either of opportunity or of competition in a struggle for existence between the fit and the unfit; between the offspring of the sane and the insane; the normal and the feeble-minded; the moral and the criminal; the employable and the unemployable, or the tainted and the untainted, with all of their immeasurable dissimilarities and ever increasing disabilities.

States Should Know Their People

A nation must regard itself in danger when its population consists in large part of broken-down and defective humanity, and individual states should know something about their populations before the percentage of their civic dependents is forced upon the public notice from purely economic causes.

A special commission reported to the Governor of New York in 1912 that "during the past fifteen years from one-sixth to one-quarter of the total State budget has been spent for the maintenance and care of its dependent and defective classes, one-third of whom are aliens." Since that time as a result of the increase in population in these institutions and the higher cost of maintenance a conservative estimate places the expenditure at one-fourth of the entire appropriation, the tentative estimate of which for this year amounts

The fate of a nation that fosters in its citizenship a steadily increasing proportion of insane, feeble-minded, epileptic, and physically or mentally defective persons, mostly of foreign extraction, is a matter to cause deepest alarm.

The children of foreign-born defectives reproduce and propagate the tainted family strains bred of deficient ancestry and parentage.

The cost to heredity of alien defectives now in the country cannot be estimated in terms of money. Close medical restriction of immigration will correct and prevent the evil.

to \$96,858,064.49. The object of this paper will be to discuss the immigration problem from the standpoint of the established relationship of the indigent to heredity, as well as to point out that through the admission of excludable alien stock an inequitable burden of unfit defective and criminal dependents is created.

The new immigration law excludes persons who have had one or more attacks of insanity

at any time previous to landing, as well as persons of constitutional psychopathic inferiority, and chronic alcoholics. The law is also broadened to exclude mental and physical defectives irrespective of their financial condition or ability to earn a living. The enforcement of these provisions will have a far reaching effect provided that the law itself is not abrogated by the issuance of "rules and regulations" permitting these excluded classes to land under bond in the discretion of the Commissioner General of Immigration, or with the approval of the Secretary of Labor; but even this grant of discretion does not warrant the acceptance of a bond for an idiot, an epileptic, or members of other classes definitely and finally excluded by the terms of Section 3 of the Immigration Law.

For many years the indiscriminate admission of excludable aliens into the country through the medium of inequitable and unenforceable bonds, has created results which to-day impose a staggering financial burden on the State of New York and, what is of exceedingly more vital importance, an almost unsolvable social problem, because of the transmission of those human, inheritable traits that so positively beget an insane, imbecile, feeble-minded, and criminal offspring in long and unbroken lines of descent.

An able bodied, physically fit, morally stable, and mentally alert immigrant is an asset to our country. The economic value of such an alien increases as he becomes a producer and consumer. As a defective he is a liability; if he propagates

his kind he may become a distinct menace as well as a financial burden of no mean proportions.

There is no problem of more vital importance to this nation to-day than the effect upon heredity of the blood introduced through immigration during the past decade for, while the economic burden of caring for those aliens who become public charges has even now reached enormous proportions, the chief danger lies in the transmission of such traits by the marriage and reproduction of feeble-minded, epileptic, criminal, drug-addict and borderline cases which remain at large.

What incredible folly for a government to admit such strains under any conditions! How can a nation be so blind to its future existence? In the case of New York with its three millions of alien residents, the obligation to correct and regulate this menace becomes at once an economic, social, and moral duty to the State, the taxpayer, the individual, and posterity itself.

The Federal government has the sole authority to admit, deport, or exercise discretionary power for the admission of otherwise excludable aliens; while at the same time it disclaims any future responsibility for the maintenance of such insane, imbecile, feeble-minded, diseased or public-charge cases after they are released from Ellis Island. This evasion of responsibility has placed an exceptionally heavy burden upon the institutions of New York, for the reason that that State annually receives for permanent future residence one-third of the total immigration into the United States; and an average of more than two-thirds of all excludable aliens admitted into the country.

Looking backward for a period of six years, it is to be noted that in 1912 there were admitted to the United States under bond by the immigration officials, 914 aliens, of whom 716, or 78.3 per cent, entered the State of New York. In 1913, of 678 so admitted, there were 381, or 56.2 per cent, who entered New York. In 1914, of 905 so admitted, 595, or 65.7 per cent, entered New York. In 1915, of 1,874, 1,286, or 67.6 per cent; in 1916, of 2,264, 1,482, or 65.4 per cent; and in 1917, of 2,408, 1,681, or 69.8 per cent, were released at the port of New York.

From a survey of the past twenty-five years the reason for the crucial financial situation of the present not only is apparent, but it may be demonstrated that the detrimental effects through heredity can not be estimated in terms of money.

Beginning August 1, 1914, the Federal government suspended deportations to belligerent countries and as a result we are confronted by the following alarming facts:

August 1, 1914, to June 30, 1915—Total of deportable aliens admitted to the country 1,328, of which

388 were insane; excludable at time of entry 697; other causes prior to landing 167; loathsome or dangerous diseases 76.

July 1, 1915, to June 30, 1916—Total 856 deportable aliens were admitted; insanity 394; excludable at time of entry 329; other causes prior to landing 90; loathsome diseases 43.

July 1, 1916, to June 30, 1917—Total 694 deportable aliens were admitted; insanity 346; excludable at time of entry 201; other causes prior to landing 127; loathsome diseases 20.

July 1, 1917, to June 30, 1918—Total 1,045 deportable aliens were admitted; insanity 595; excludable at time of entry 215; other causes prior to landing 179; loathsome diseases 56.

We have therefore for the four years 1914 to 1918 the astounding total of 3,923 excludable aliens upon whom orders of deportation have been suspended, and of this number 1,723 were insane, 2,005 were excludable from other causes, as liable to become public charges, and 195 suffering from loathsome or dangerous diseases.¹

Mental Deficiency and Dependency

It has been demonstrated conclusively that the vast majority of dependent aliens in the State of New York are directly or indirectly chargeable to the iniquitous practice of admitting such prohibited classes under bond, but during the four years from 1914 to 1918, even this discretionary power was exceeded and many of them were admitted on their own recognizance, which, after all, is perhaps as binding and effective as the other unenforceable method. The fate of a nation thus fostering a broken-down and defective population either from blood taint, eugenic causes, or accident casualties, and with a gradually increasing percentage withdrawn from productive lines, is to be regarded with alarm.

In order to ascertain the extent of institutional care of the insane, feeble-minded, epileptics, alcoholics, and drug addicts in the several states in the Union, the National Committee for Mental Hygiene, on January 1, 1917, took a census of the patient population of institutions caring for these classes throughout the country with the following results:

CENSUS OF INSANE

There were 234,055 insane patients under treatment in institutions in the United States on January 1, 1917. Of these 225,824, or 96.5 per cent, were in public institutions, and 8,231 in private hospitals.

CENSUS OF FEEBLEMINDED

There were 37,220 feeble-minded persons in institutions throughout the country. Of these 34,404, or 92.4 per cent, were in public and 2,816 in private institutions.

CENSUS OF EPILEPTICS

The epileptics, not including those insane or feeble-minded, totalled 10,801. Of these 10,394, or 96.2 per cent,

¹ Table XVIII—A. Reports of Commissioner General of Immigration, 1915; 1916; 1917; 1918.

were cared for in public institutions and 407 in private institutions.

CENSUS OF INEBRIATES AND DRUG ADDICTS

The census showed a total of 4,891 inebriates and drug addicts receiving institutional care. Of these 3,991, or 81.6 per cent, were in public institutions.

The census illustrates that of the total number of insane, feeble-minded, and epileptics in the United States, 95 per cent are being cared for at the expense of the government.

The population of the United States increased from 91,972,266 on April 15, 1910, to 102,826,309 on January 1, 1917, an increase of 11.80 per cent, while the insane in institutions increased from 187,791 to 234,055, an increase of 24.64 per cent during the same time, which was the period of heaviest immigration in the history of the country. Recognition of the necessity for the study of eugenics as a governmental function has not yet been seriously considered, but in the State of New York, groaning as it is under its ever increasing cost of public charges, neglect of this subject is little

short of criminal. While experiments in various municipalities have been conducted with the hope that the feeble-minded could be trained to be self-supporting in the majority of cases, failure has resulted. It has been conclusively demonstrated that the feeble-minded child will remain feeble-minded; also it is true that insane tendencies are hereditary and that crime and pauperism are traits just as inheritable as are habits of thrift and industry. The recognition of these facts demonstrates that if we are to retain our national stability an amendment must be read into the immigration laws of this country, providing for the mandatory exclusion of all unfit and defective aliens, and to assure the survival of the fittest, the expeditious deportation of all of those who have become dependents within the five-year period. In no other manner can be effectively safeguarded "our lives, our liberty, and our sacred honor." Far better an illiterate, able bodied alien whom we can instruct at little cost in time and money, than a defective whose traits will be transmitted to posterity either before he becomes a public burden, or, if he escape incarceration, he becomes a vastly greater menace by

begetting of his kind—the worse evil of the two.

Experiments conducted and data collected by the Carnegie Station for Experimental Evolution demonstrate that a great majority of the feeble-minded spring from defective stock, and, indeed, that the mating of certain classes of defectives will produce very definite types of offspring; as well as the indisputable fact that from degenerate communities spring forth a large proportion of the paupers, beggars, criminals, and prostitutes that infest our cities.

While the subject of alien dependents in the civic institutions of New York has been treated exhaustively by many agencies these investigators have, usually, confined their reports to their own special field of endeavor such as that of the State Hospital Commission, the State Board of Charities, the State Superintendent of Prisons, and the Committee on Inquiry into the Departments of Health, Charities, and Bellevue and Allied Hospitals (1913).

As an immigration problem it has become the function of the writer to correlate the data compiled by these various agencies, and the result has engendered a very definite conviction that it is imperative to attack the problem at once, at the source, as well as to utilize all of the scientific and governmental resources at our disposal to prevent the spread of a scourge more insidious than any of the exterminating plagues of history. A lack of consideration of the innate qualities of our immigrants is perhaps the greatest evil that threatens our civilization.

Defective Aliens Intermarry

A noted scientist asserts that "it is probable in the case of a feeble-minded immigrant that because of the fact that he cannot select a normal stock in which to marry, he will therefore marry another of his kind, and as a result all of his children, grandchildren, and great grandchildren will be feeble-minded." In 1912 it was reported that there were 7,000 feeble-minded children in the schools of New York, 30 per cent of whom were of alien extraction. Since that time the ungraded classes have multiplied and reports of experiments conducted by institutions and reformatories are discouraging in so far as success in efforts either to

make such ungraded pupils self-supporting or to correct their unmoral tendencies as a class. Abundant illustrations are available certifying that families of defectives and criminals can be traced back to a single ancestor. The transmission of "Huntington's Chorea" through a series of families involving 900 persons, all of them afflicted with anti-social traits, has been definitely traced to the source of three brothers who came to New England in the seventeenth century.

Heredity and Defectives

Nearly always the preponderance of such strains as a result of consanguineous matings are concentrated both as to traits and localities, and for the sake of illustrating the danger to heredity through the introduction of such defective aliens, it is permissible to cite two well known cases: "The progeny of Bell Juke is a dreary monotony of harlotry and licentiousness to the fifth generation," which cost the State of New York more than \$1,700,000 in 70 years; and the Nam family, which has imposed a financial burden of \$1,500,000 during the same period, "not directly in the care, but indirectly, in the damage they have done."

Ishmaelites of Alien Extraction

Among other cases where whole colonies of defectives spring from a single ancestor we have as illustrations the "Ishmaelites" of Indiana, whose descendants are to-day intermarried with more than 200 other families who have begotten murderers, prostitutes, and a large number of illegitimate. In Rhode Island there exists a whole colony of deaf mutes—the result of consanguineous matings of defective and related strains.

In Kentucky there is the Owen family. From the original four children has sprung, since about 1850, a total of 1,750 individuals, among them 121 prostitutes, with a long criminal record and a number of murders.

Extreme examples such as the above are necessary to drive these incontrovertible facts into the public consciousness and to illustrate the utter recklessness of permitting the admission into this country of feeble-minded, epileptic, insane, and imbecile immigrants who, together with their progeny, eventually reach the hospitals, almshouses, and prisons of the State.

The fact that the number of feeble-minded in the country greatly exceeds the number of insane as well as the fact that there are fewer of this class of defectives in institutions in every State in the Union, but accentuates the danger from a eugenic point of view.

With such a nucleus as the investigations indicate, and mindful that the admission of even

one feeble-minded person represents potential evil for future generations, it is obvious that a yearly succession of such alien admissions is so grave in its possibilities as to call for immediate inquiry as to its justification, and for drastic correction if unjustified. Even if the intention of the law permitted such discretion to be imposed in any one individual it would be a most unwise and dangerous practice from any point of view.

Immigration Versus Crime

Recent statistics show that in Germany before the war there were only five murders to each million of population; in England less than nine; while in the United States there were 118 to each million of population.

It is alleged that more murders are committed in this country in normal times than in any ten other civilized countries in the world, including Russia. Why? Can our Federal immigration authorities answer this question?

In 1914 the suicide rate in the United States numbered more than 15,000, or .015 of 1 per cent of the entire population. Why? Is it not because the defective and semi-defective offspring of our prohibited classes of admission are too neurotic to stand the strain of the constantly increasing complexity of existence?

To illustrate the relation between immigration and crime it may be stated that between 1890 and 1900—the third lowest decade of immigration in the history of the country—while the population of the State of New York increased 21.2 per cent, the prison population in the same period of time showed a decrease of 6.5 per cent. Witness, however, the complete reversal during the following decade. From 1900 to 1910, the decade of highest immigration in the past ninety-nine years, the population of the State increased 25.4 per cent, while the prison population increased 37.6 per cent. The report of the superintendent of New York State prisons for the year 1910 states that "the increase in our prison population clearly shows that it is due in a large degree to the admission of foreign criminals to the country during the past few years and more than 54 per cent of the increase is chargeable to this direct cause."

Criminal Defectives a Burden

In 1914 alien prisoners constituted 32 per cent of the prison population, while it is exceedingly significant that in 1917, the year of the lowest immigration since 1862, the prison population decreased 537, which is the first decrease shown since the period between 1890 and 1900.

The cost of maintenance of alien prisoners in the State of New York amounts to over a quarter of a million dollars each year; but of exceedingly

greater importance is the cost of the propagation of these criminal strains when released. It is certain that many convicts were defectives at the time of admission and should have been arbitrarily excluded from the country. In many instances aliens have committed crimes within twenty-four hours after their arrival. A noted jurist in referring a deportation recommendation to this department states:

One 17 years of age, recently out of the House of Refuge or City Reformatory, who has been indicted for taking a younger boy on the roof of a tenement house and shooting him in the legs, this day has been committed by me to the Manhattan State Hospital for the Insane. He has been insane or idiotic all of his life.

One 21 years of age, a Greek, arrived in this country about a year and a half ago at the port of New York. Within a month thereafter he was convicted before a city magistrate in New York for vagrancy, and sentenced to three days in the workhouse. He has this day pleaded guilty to attempted grand larceny in the second degree (picking pockets), and he is an undesirable person for this country. The defendant evades a truthful answer to the inquiry upon what ship he arrived.

In 1910 of a total state prison population of 4,610, including Mattewan, there were 1,851 foreign-born inmates. In 1914, of 4,954 total inmates, there were 1,997 foreign-born, and in 1917, of 4,520 total population, including Dannemora, there were 1,811 foreign-born persons.

In the institutions of New York, excluding hospitals for the insane, during the year 1917 there were 13,409 public charges of whom 28.4 per cent were feeble-minded or idiotic, 12.7 per cent epileptics, 20.6 per cent reformatory boys, and 11 per cent reformatory girls.

It is logical to assume that reformatory inmates who are defectives will eventually be set free. Also a large number of the feeble-minded aliens admitted to the country are women of marriageable age. If all those under seventeen or above forty-five years of age are excluded from consideration there remains that most important problem of how to prevent the propagation of these defective classes who remain at large.

Exclusion of Unfit the Only Safeguard

Whatever the intention of the immigration law, in operation, the Bureau of Industries and Immigration, which, under the mandatory provisions of the labor law, is legally responsible for following up the aliens admitted to New York State, so admitted. Discretion in a matter so vital should devolve only upon a commission of medical

and scientific experts whose recommendations no official could override.

It has been estimated that the proportion between the addition to our electorate by attainment of majority, of persons born in this country and those who have been naturalized, indicates that "it is not greater than two to one and possibly closer to one to one," and, owing to the fact that the new stock has been proved to be more prolific than the old, it is clear that the balance of political power will soon be in the hands of the children of foreign-born parents or foreign extraction. All of this argues against the vesting of discretionary power with respect to the admission of unfit and excludable aliens in any single official, instead of in a commission empowered to exclude on purely scientific tests.

Immigration Versus Industry

The United States is harboring a foreign population of 15,000,000 immigrants plus their 19,000,000 children—irrefutable evidence of the

fecundity of the strains introduced through immigration channels and comprising altogether one-third of our total national population. Are they to gravitate into the debit or credit column of the nation? If that prolific blood is tainted, it follows that it will most assuredly become a liability of no mean proportions; but if on the contrary it transmits virility, as a nation we can count the invasion of the immigrant as a huge and ever growing asset.

Among the great surprises of the war was the vast importance of the alien in our army. The total alien registration was 1,243,801, the largest induction being from the State of New York where 239,333 were registered between the ages of 21 and 31, more than 20 per cent of the total registration of the nation. A study of the statistics of deferred classifications would, no doubt, constitute an additional indictment in the category of the unfit. The correspondence between these soldiers and their friends and relatives at home was conducted in forty-three different languages. What a shocking revelation to the theoretic apostles of the "melting-pot." The chief economic value as well as the chief military value of an immigrant must always be his health. The health of a laborer is of no less importance to an industry than the health of a soldier to an army. A physically unfit worker can be only an eventual

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In one of our largest mining and reducing industries recently inspected by the writer, an elaborately decorated gymnasium, ball field, tennis court, skating rink, etc., had been constructed under the direction of the so-called "welfare" manager, but the foreign-born laborers were at the same time sleeping in double shifts in vermin infested three-tier bunks, with an allowance of less than 200 cubic feet of air per man, and many were suffering from loathsome and infectious diseases. Healthy men were obliged to occupy not only the same room but the same bunks in the exchange of day and night shifts.

Defectives and Industrial Accidents

In the 60,000 factories of New York, 2,000,000 workers are employed, of whom approximately 1,600,000 are foreign born.

During the year 1915, the first year in which the Workmen's Compensation Law became effective in the State of New York, there were 225,391 reported accidents; in 1916 there were 273,385; in 1917, 313,406; and in 1918, 286,871, costing \$11,500,000, or \$40,000 a day, and representing an average of 274,763 each year—practically as great a number per year in that one state as the entire National Army casualties since we entered the war of which the latest figures announced by the War Department, including prisoners released and returned, amount to 289,416. At the present writing reports of accidents are being received at the rate of 1,000 a day, representing a cost of \$13,000,000 a year as an initial expenditure, to which must be added the cost of medical benefits, administration of the Compensation Law, wages, and cost of turnover, all of which has increased the total direct and indirect cost of accidents in the State of New York to \$35,000,000 yearly, or a rate of about \$117,000 per day for each working day in the year. And 70 per cent of these applicants require the services of an interpreter to present their claims.

In the State of New York, therefore, during the four years between 1914 and 1918 there occurred 1,099,053 industrial accidents—an average of 274,763 each year—a greater number of accident casualties per year in this one state than the entire casualties of the war among the American forces of which the figures at this writing are 273,000. The aftermath of such human havoc will largely produce the same results as follows in the wake of the prohibited classes; we have, therefore, this additional liability to figure in the trial balance of the country. Who can estimate the

total cost? With the productive capacity of a nation reduced, and its dependent and defective classes multiplying in such alarming proportions the tax upon its resources becomes inequitable. In Pennsylvania, the state receiving the second largest quota of immigration, accident casualties are not only voluminous but of the direst nature. During the past year the New York State Industrial Commission has investigated cases involving actions in which the total amount sued for was approximately \$1,500,000. Settlements were obtained amounting to only about \$25,000, in many cases leaving behind derelicts as helpless as any of the survivors of war.

Five years ago, the coming and going, the hiring and firing, of the alien worker was little regarded; Ellis Island could produce many more where he came from. Five years ago the economic aspect of uncompensated accident casualties was considered of small importance. To-day there is forced upon us the consequences of an abnormal war. To-day, the immigrant has become an individual who counts. Moreover, the stoppage in immigration comes at a time when we are facing the greatest industrial crisis and the greatest economic crisis that the world has ever known. Hundreds of thousands of our most efficient workers have been maimed and hundreds of thousands of our alien workers are being withdrawn through industrial accidents that might have been prevented, as well as by re-migration that has but begun. It has been conservatively estimated that upwards of 5,000,000 aliens have declared their intention to return to Europe. These are the common laborers of the Nation. These are the fit and the virile among our immigrants. Our native-born workers will not replace them. The slowing down of our industries under such tremendous loss of manpower is inevitable and we cannot afford to slow down. America for the next century at least should be Europe's workshop. We are the producers for the world. Our very existence depends on our continued driving ahead.

Scrutinize the New Immigrants

Is this tremendous gap to be filled with insane, imbecile, feeble-minded, and syphilitic stock, with the flotsam and jetsam of five years of agony, anarchy, and revolution? The inevitable introduction of severe functional nervous disturbances as well as of an excessive amount of venereal disease through this influx, will tend largely toward an increase of the prohibited classes if the lines are not intensively drawn.

There will be after this war millions of widows and orphans, many of whom will seek a domicile in this country to join relatives and friends.

After five years of agonizing distress and under-nourishment these persons, particularly the children, will be physically and mentally subnormal and the lamentable effects of malnutrition and its congenital sequences cannot but react upon those of more vigorous ages with the result of a weakened maturity. We cannot hope that the renewed immigration will bring in, even among those who cannot be excluded, the hardy stock of bygone years. We are facing a definite weakening of the very fiber upon which our stability as a nation is founded.

Bitter are the casualties of war, but of a bitterness far more intense are the casualties of peace—industrial accidents, preventable disease, carelessness, crime, ignorance, and the violation of Nature's most fundamental laws. The victims of these contingencies create an army of the unfit with nerves as shattered and diseases as incurable as any of those whose sacrifice has been necessarily offered in the service of their country. Some of these evils we must have, but the deliberate and indeed iniquitous introduction of the unfit into the commonwealth is unnecessary and unjust to both our native and foreign born population, and should be forever prevented by the most drastic legislation.

Looking Ahead a Century

"There is no wealth but life," says Ruskin, and if, as some scientists assert, the human race has not improved very much in quality in the last hundred years, it behooves us to take most positive steps to prevent a decided retrogression during the next century; and in as much as the constant depletion in the ranks of the fit but increases the danger of multiplying the unfit, we have in the next few years just about double the danger to face with half the resources with which to combat it.

Should these present-day conditions continue, one can predict very accurately what will happen in the future. When a people or a race is lowered in its efficiency, the apex of its grandeur has been reached. History but repeats itself in this as in other events. Greece, Rome, and Egypt

can credit their decline and downfall to a lowering of the quality of their men. Whether we as a nation can bring any radical changes about in our generation is problematical. We may reap a harvest that no governmental action will be able to control if these conditions are permitted to continue.

The State of New York has room for other millions of mentally and physically sound immigrants, whom it can well afford to protect and educate from an economic point of view. The financial resources of the government for such development and education should, however, not be curtailed by an unnecessary and finally useless expenditure for maintenance of those who are unfit and who multiply their unfit progeny in such alarming proportions.

These conditions must be squarely met. They are not theories but well authenticated facts. They cannot be ignored. They brush aside all political considerations and become one of the most vital issues of the day.

John Bright denounced the policy of the empire that would bring misery to the nation when he said: "I believe that there is no permanent greatness in a nation unless it is based on morality. I care for the condition of the people among whom I live. * * * The moral law was not written for men alone in their individual character, but it was written as well for nations, and for nations great as this of which we are citizens. If nations reject and deride that moral law there is a penalty which will inevitably follow. It may not come at once, it may not come in our lifetime, but, rely upon it, the great Italian is not a poet only, but a prophet when he says:

"The sword of heaven is not in haste to smite,
Nor yet doth linger."

Typhoid Vaccination

"Although the protective value of antityphoid vaccination is no longer open to question, the practice of this procedure should under no circumstances be regarded as a substitute for the observance of sanitary precautions," warns the United States Public Health Service in the *Public Health Report* of March 28, 1919, in reproducing the circular by the Chief Surgeon of the American Expeditionary Forces on "Typhoid and Paratyphoid Fevers."

LOWERING THE NATION'S EFFICIENCY

Should these present day conditions continue, one can predict very accurately what will happen in the future. When a race is lowered in its efficiency, the apex of its grandeur has been reached. History but repeats itself in this as in other events. Greece, Rome, and Egypt can credit their decline and downfall to a lowering of the quality of their men. Whether we as a nation can bring any radical changes about in our generation is problematical. We may reap a harvest that no governmental action will be able to control if these conditions are permitted to continue.

TENT RESTORES HEALTH AND HOME

A tent pitched on the roof of a New York City dwelling became the home hospital for the husband and wife who are enjoying the sunlight and fresh air in the accompanying illustration. Both were suffering from pulmonary tuberculosis. A summer spent under the canvas and in the sunlight worked a miracle, and helped to restore parents and children to independence. The family was found at Christmas, 1907, without money or food. The three children—the eldest only 11—were placed out to board, and a boarding place was found for the two patients where a tent might be pitched on a flat roof. Treatment was taken and both patients recovered.

The family is now re-united. The woman has been doing her own house-work for eight years, and her husband, who is now a motorman, has been self-supporting for the same length of time.

The patients found much to encourage them at the start when they began to put on weight and regain sufficient strength to return to work, all of which helped their recovery.

AFRICA COMPLETES INFLUENZA SURVEY

The influenza epidemic was extraordinarily severe in the Union of South Africa. The true severity of the epidemic is indicated by an incidence rate of nearly one in every two persons, as reported by the Influenza Epidemic Commission appointed by the Governor General. The average incidence rate was found to be 42.79 per cent.

Among the non-European peoples the disease was more prevalent and resulted in more fatalities in proportion to the number of cases, than among European residents of the Union. The non-European group is shown to have an incidence rate of 46.03 per cent, with a fatality of 5.90 per cent of the persons attacked. Compared to these figures, the Europeans had an incidence rate of 32.06 per cent, with a fatality of 2.57 per cent.

There were 139,471 deaths in about four months. In the non-European group, a total of 127,745 deaths occurred among 4,679,152 persons, or 27.19 per 1,000 of the population. The European group shows 11,726 deaths among a total of 1,418,060 persons or 8.26 per 1,000.

The deaths were most numerous in the age groups of the third and fourth decades, and likewise the occurrence of the disease was most frequent in these groups. Fatalities were numerous among pregnant women. The locality reporting the highest death rate is Cape Province, where there were 33.5 deaths per 1,000 of population. The Commission notes that the Province of Natal had the lowest death rate of any province of the Union, the proportion being about one-third that of Cape Province. A coincidence is observed in the fact that during an epidemic of influenza in 1889-90, as in the present epidemic,

Natal, and more particularly the city of Durban, suffered less than other parts of the country. It is shown that European immigrants suffered less than persons of European parentage who were born in Africa.



"Home hospital" improvised on a flat roof. The patients, husband and wife, were both ill with pulmonary tuberculosis and unable to work. Both have recovered and have been working for eight years.

The Commission suggests that the reasons for the higher incidence and mortality rates among the native or non-European group of the population may be found in the well recognized susceptibility of the native and colored population to diseases of the respiratory tract, poor housing conditions, a lack of even the most rudimentary knowledge of how to care for the sick, and prejudice against hospitals and medical treatment. To combat these conditions, the local authorities in all provinces were given the power to compulsorily remove to a hospital or other place of isolation, either the persons suffering or suspected to be suffering from the disease, or those who had been exposed to infection.

The following recommendations on sanitary measures which the government is advised to take as a safeguard against any similar outbreak of disease, are contained in the report of the Commission:

"There is no evidence before the Commission that the virulence of the disease had any definite correlation with poor sanitary conditions, but nevertheless, it is clear that bad housing, congestion, and insanitary conditions facilitated the spread of the disease, and tended to increase mortality."

"The Commission desires strongly to emphasize the necessity of devoting immediate attention to the improvement of housing and sanitary conditions in slum areas and in native locations."

Uncle Sam Issues Health Leaflets

The *Health Leaflets* which have been prepared by the United States Public Health Service for popular distribution are superior to many similar bulletins, in their brevity and ease of reading. The first of the leaflets, No. 1 of the *Keep Well Series*, bears the title, "The Road to Health." Diphtheria and tuberculosis are subjects of other leaflets recently issued. They may be obtained upon request to the Public Health Service, Washington, D. C.

COORDINATION OF HEALTH AND SOCIAL AGENCIES

BY GEORGE THOMAS PALMER, M.D., PRESIDENT OF THE ILLINOIS TUBERCULOSIS ASSOCIATION; ASSISTANT DIRECTOR OF THE ILLINOIS STATE DEPARTMENT OF PUBLIC HEALTH, SPRINGFIELD, ILLINOIS

I. Introductory

PARTICIPATION in the world war gave to the American people a new social conscience, taught them a new standard of generosity, and impressed upon them for the first time the practical value of individual and community health. The patriotic spirit of the war, and particularly the personal interest created through the sons of over three million families participating in it, enlisted in war work hundreds of thousands of men and women who had never engaged in any kind of public service before and whose experiences have made them not only ready, but keen for further social activity. The sudden signing of the armistice left thousands of idle but willing hands associated with a number of organizations which had attained great power and momentum. This vast army of men and women are ready to engage in medical and social work, and in their spirit of enthusiasm, they want and expect to see definite action and speedy development.

The Awakening Social Conscience

In the comparative apathy which existed before the war, health and social agencies were hampered and retarded by the magnitude of their problems and by inability adequately to finance them. The war has given us a broader vision and a new conception of generosity. Philanthropists who formerly talked in terms of hundreds now act in terms of thousands of dollars and the rank and file of the people, who formerly contributed nothing toward social or community progress, have come to feel that they have a financial responsibility which they are not disposed to shirk.

Thus we find ourselves with a new army of lay workers, fired with an enthusiasm born of their first adventures in public service and with financial resources available such as we have never known before. Many of these new recruits are business men of large affairs who have previously

Dr. Palmer in his official capacity as an administrative health officer, and by his past experience, is well fitted to write authoritatively on public health problems. In 1901 as head of the Trinity Diet of Infants of Chicago, he was one of the pioneers in child welfare work in the Middle West. Later he was assistant secretary of the Illinois State Board of Health, in charge of communicable diseases. Then in the capacity of health officer of Springfield he carried out the most complete sanitary survey made of any city up to that time, the results of his housing investigations being still widely quoted.

been engrossed in their own enterprises and they are naturally disposed to apply so-called "business principles" to health and social problems, confident that business system, backed by adequate funds, will be as productive in the solution of health and social problems as in the commercial world. Consequently they are advocating combination, consolidation, the elimination of lost motion and over-lapping, the centralization of power, and other factors which have made for economy and efficiency in industry. These great potential forces, now that the war is over, are naturally looking for the most important field of activity and our experiences during the war have indicated that such a field is to be found in the promotion of individual and community health.

Health the Paramount Problem

The disclosures of the exemption boards and of the army medical examiners came as a distinct shock to the American people. The wide prevalence of physical inefficiency among our young men, and particularly the previously unsuspected magnitude of our tuberculosis and venereal disease problems, were a blow to our national egotism. Hard-headed men had it impressed upon them for the first time that the strength of a nation is no greater than that of the people who constitute it.

In addition to the revelations as to American health by examining boards, the influenza epidemic of last autumn gave a tremendous impetus to national public health work. Just at the time of greatest urgency, the mobilization of troops was suspended and essential industrial activity was slowed down on account of the epidemic and for several days it appeared quite possible that, in spite of our tremendous wealth in money and our strength in men, our participation in the

world war might end in failure purely on account of preventable diseases. For the first time in the history of the nation, public health assumed the place to which it is justly entitled—the nation's problem of paramount importance.

A Quickened Public Spirit

Awakened by our own tragic experiences, the American people have come to view with greater interest the health problems of the European nations. We have seen France and Belgium attempting to solve the tremendously important question of repopulation to replace the thousands of young men lost by war and to prepare for the gigantic undertaking of reconstruction. We have seen the child assume a place of new importance and have come to recognize for the first time that child conservation is a subject worthy of profound consideration by our statesmen, business men, and men of affairs. Public health and individual health have loomed out of the background of war, the most worthy field for the interest and activity of the public spirited people of the nation.

II.

As has been frequently pointed out, there have been developed in the United States, within the past quarter of a century, a very large number of volunteer agencies engaged more or less actively in some form of public health endeavor. For the most part these agencies have addressed themselves to individual, specialized problems, ignoring in a large measure the other and closely associated health activities except as they touched immediately upon their own organizations. In many instances these extra-governmental agencies were more liberally financed and more capable of developing largely specialized organizations than the duly constituted governmental health authorities, and, for that reason, they have been responsible for a very large part of the gratifying progress in public health work that has been made in the United States during the past decade. Broad-minded public health officials have been ready to recognize this service and have utilized its results to the tremendous advantage of the people.

Properly Financed Movements Succeed

This sharply defined division of the several fields of public health endeavor has been open to serious objection. It has been responsible for a very real over-lapping and it has unquestionably led to the placing of undue accent on certain phases of health work as compared with the stress laid upon phases equally, or more, important. The independent and uncoordinated activities of these numerous organizations have unques-

tionably been responsible for a maximum of expense and a decided loss of efficiency.

On the other hand, the narrow specialization to which objection is now made has resulted in compelling recognition for a number of important branches of public health work. Tuberculosis was notoriously ignored by public health authorities from time immemorial until a specialized organization, adequately financed, demanded recognition for this wide-spread and destructive disease; while child welfare work, housing, the prevention of blindness and other important subjects had shared a similar experience. It is very doubtful if many of the governmental health agencies would have accorded the consideration to these subjects they now have had if not been for the inconsistency with which these specialized organizations demanded recognition and even over-recognition for their individual lines of work.

Consequently it appears that strict specialization by extra-governmental agencies in the past has not been a serious mistake and that the results have justified the policy regardless of its extravagance as measured by our present standards of economy and efficiency. If consolidation and coordination are desirable, as they appear to be, the time for such consolidation has but recently arrived. In this connection there has been no unfortunate delay.

The feature in the programs of extra-governmental agencies in the past which has been most open to criticism is that their point of view has been too narrow. Engrossed in their own specialties, they failed to recognize that their own progress would be accelerated by a broader knowledge of those phases of health and social work closely related to them.

Facts That Are Overlooked

Those engaged in the tuberculosis movement, which constitutes the best organized and most liberally financed of extra-governmental health agencies in the nation, have unquestionably devoted themselves assiduously to a warfare against the tubercle bacillus without recognizing that many other factors are contributing to the steadily decreasing tuberculosis mortality and morbidity. They have prided themselves that the death rate from tuberculosis has decreased about 30 per cent in the last quarter of a century, during which their propaganda have been active, while overlooking the fact that the death rate was rapidly decreasing during the previous twenty-five years and prior to the development of tuberculosis societies. When the tuberculosis enthusiast has investigated the milk supply, he has usually done so with his mind centered upon bovine tuberculosis or the accidental tuberculous contam-

ination of milk, without sufficient regard to the influence of a good milk supply in the betterment of general health with consequent decreased incidence of tuberculous disease. When his studies have taken him into the field of housing, the tuberculosis worker has devoted himself largely to the viability of the tubercle bacillus in dark and unventilated rooms with the possibility of conveyance of infection from the previous tenant to his successor, failing to give sufficient thought to the general consideration of light, ventilation, overcrowding, and the various phases of housing which affect individual and community health and strength.

There have been times when tuberculosis workers have questioned the wisdom of the expenditure of their funds in carrying out child welfare work and other broad, general health activities, without realizing that, as now seems apparent, such general activities are quite as responsible for the rapidly decreasing tuberculosis death rate as the narrower combat against the tubercle bacillus and specific infection.

Health Workers on Common Ground

Incidentally, regardless of this rather narrow point of view, tuberculosis organizations have actually done more than any other agencies in bringing together medical and social forces which have always been too far divorced in the meeting of public health problems. In certain vast areas of the nation, practically all of the dispensaries, the visiting nurse service, child welfare work, and extra-governmental public health activities have been financed through Red Cross Christmas Seals and the national or state tuberculosis associations, so that their work has been broader and wiser than their expressed policies and the theories of the average tuberculosis propagandist.

With like truth it may be stated that public health officials and many volunteer health workers, whose interests necessarily touch at many angles upon the tuberculosis problem, have attempted to operate without an intelligent conception of the fundamental facts of tuberculosis work. In times past, at any rate, local and state health authorities have attempted to deal with tuberculosis purely as a contagious or infectious disease, much as they do with scarlet fever or diphtheria, without recognizing the tremendous social factors involved or the fact that if every person with tuberculosis infection were isolated or quarantined, there would not be more than 20 per cent of the adult population free to engage in the affairs of the world.

Professional charity workers have pursued the calm and even tenor of their ways, generally

ignorant of the fundamental facts concerning that disease which must be recognized as producing more destitution and poverty than all other diseases combined and to which the poverty-stricken and under-nourished are peculiarly susceptible. The niggardly relief afforded by charity agencies to tuberculous persons, in the belief that this class of individuals may be regarded as merely among the "sick poor" is one of the serious faults in our professional relief organizations and one which has already spelled failure and defeat of purpose. On the other hand, the lack of knowledge of the principles of outdoor relief on the part of tuberculosis workers has also stood in the way of a clear understanding between tuberculosis and charity agencies.

Shortcomings of Welfare Agencies

The instances of failure to produce the maximum of results through this lack of understanding of fundamental principles among workers in closely allied health and social activities, may be enumerated in large numbers, thus arguing that there must be a central agency or a point of contact where a broader viewpoint may be obtained for all. The attempts to attain this end through conferences or organizations representing all phases of medical and social work have resulted in failure, partly because these conferences have been divided into specialized groups in which enthusiasts gather with their own fellows, paying little or no attention to the deliberations of the other sections. This condition of lack of understanding is not deliberate. The average enthusiastic medical or social specialist does not realize that he cannot know the essential facts of his own specialty until he has gained an infinitely broader conception of the fundamental facts of allied specialties.

How the Failures Come About

Another objection to extra-governmental medical and social work, as it has been carried out in the past, is that there is serious over-lapping which results not only in financial waste, but often in the actual nullification of the good accomplished by all of the several competing agencies. This is perhaps best illustrated in the programs of tuberculosis, child welfare, and parent-teacher associations. If we accept, as we must, the modern doctrine that tuberculosis is almost invariably a matter of childhood infection, that women are particularly susceptible to the activation of tuberculous disease at the time of childbirth, and that the time for effective prevention of tuberculous disease is during childhood and youth, then it must be that a successful campaign against tuberculosis would involve prenatal and postnatal care

of mothers, the supervision of infancy, the control of milk supply, medical and nursing school supervision, school sanitation, open air schools, or other provision for underdeveloped children, and the general development of robust and healthful infancy and childhood. Organized child welfare associations, to attain their desired ends, must follow a similar program, while parent-teacher associations, so far as they interest themselves in matters of health, must subscribe to at least a part of such a program; and yet, in a large measure, these three extra-governmental organizations conduct their activities without serious regard for the aims and purposes of each other, and, at times, even enter into active competition as to which shall have the opportunity and credit for this essential work.

The Ill Results of Bad Methods

The spectacle of general visiting nurses entering into wordy, if notistic, combat with child welfare nurses and tuberculosis nurses for the possession of some one, destitute family is quite as convincing of the unfortunate over-lapping of medical and nursing agencies as was the possession of seven turkeys on a single Thanksgiving day by a family that ordinarily went without sufficient food, all on account of the misdirected and misguided philanthropic effort in a certain community.

At the present time, infinite confusion is being experienced in the public health nursing of rural communities on account of the well meant and enthusiastic activities of a number of agencies, each desiring to be useful as the sponsor for this important part of public health administration.

III.

Other adequate reasons for coordination have been suggested from time to time, but argument on the subject seems no longer necessary. The case is clearly proved. Money is wasted in useless over-lapping of work and possibly in the employment of executive forces which outweigh the actual workers; and, to add to the seriousness of this point, it is recognized that far too much of the time and money of the extra-governmental agencies are expended in raising funds for their support.

Coordination, when it comes, however, must be wisely planned so that the individuality of the more important extra-governmental agencies shall not be lost and, particularly, that the advantage of specialization on the part of men and women now enthusiastic in their individual lines shall not be sacrificed. The all-around, all-comprehending physician is a rare personage, and the health officer or public official capable of the mas-

tery of all phases of public health and social endeavor has not yet appeared in this or any other country. In the present state of our development, the loss of this specialization would outweigh the advantages to be gained by any form of coordination or combination.

How to Gain Coordination

With the firm hold which the idea of coordinating health and social agencies has taken upon the American people, several plans have been rather indefinitely suggested, and several agencies have been mentioned as the central or coordinating forces.

The attempts at mutual understanding and the loose cooperation in the form of conferences has proved and will continue to prove ineffective. To bring about the desired ends of economy and efficiency through a closer understanding between the various agencies, the meeting point must be stable and the relationship definite and it is very doubtful if any existing extra-governmental agency is sufficiently strong or prominent that it would be generally acceptable to all of the specialized agencies for any form of strong leadership. Extra-governmental agencies are essentially temporary in character. As a rule, their destinies are guided by very small groups of individuals whose death or removal would materially affect the strength and future of their organizations. The history of the rise and fall of ambitious organizations in the past is sufficient proof of this assertion.

It has been stated that national, extra-governmental agencies dealing more or less directly with health have an annual budget of approximately \$1,500,000, while the National Tuberculosis Association passed through its treasury during the present year the sum of \$2,500,000, an amount which gives promise of increasing with succeeding years. It is clear that these agencies, aside from the importance of their health work, control sums of money, now being more or less wisely expended, which cannot be tampered with except after serious consideration and it is not reasonable to assume that an organization which has developed a strong staff and large resources would be willing to yield itself to a definite coordination under a leadership less firmly established, less liberally capitalized, or less stable in its existence.

IV.

For this reason, it appears clear that the central rallying ground or point of contact, which now seems to be insistently demanded, shall be a governmental agency, duly and permanently established by law, and this idea seems the more

rational when we consider the fundamental principle which underlies all extra-governmental health work. For many years it has been held that public health and social work is a proper and natural charge upon the tax-paying public and that extra-governmental agencies are developed largely for educational purposes with the idea that, when they have demonstrated their usefulness, their activities shall be passed over to governmental organizations.

Personnel of Advisory Body

In the various states, it seems a practicable plan that the presidents or executive officers of all the state-wide, extra-governmental health and social agencies should constitute an active advisory council for the State Department of Public Health, the state health officer, regardless of the personality of that individual, becoming chairman and presiding over the deliberations of such an organization. Likewise it seems practicable for the national health and welfare associations to form a similar association with the United States Public Health Service.

It is not desirable, in such a plan, that the extra-governmental organizations should surrender any of their individuality or become subservient in any way to the state health authorities. In fact, even casual consideration of the program will indicate that, instead of losing strength, these coordinated organizations, representing a very large percentage of the intelligent population of the state, would be instrumental in stimulating the state health department to better and more efficient activity and this would be the more certain if, as seems desirable, there should be added to this advisory council the presidents or executive officers of the state federation of labor, the state press association, the state manufacturers' association, the state organization of chambers of commerce, the state federation of women's clubs, and similar bodies whose connection is indirect, but whose interest is manifestly great in the promotion of health and the prevention of disease.

How Issues Would Be Settled

Such a council should meet regularly and with relative frequency. The state health officer would be in position to indicate to what extent the state or the duly constituted authorities of local communities are prepared to take over any part of the activities of any of the extra-governmental agencies, thereby releasing the funds of these organizations for the extension of other important work in which the public agencies are not prepared to engage.

In questions of serious over-lapping, or in

equally serious questions of important health activities neglected by the various agencies, the state health officer would, as a rule, constitute an unbiased and impartial mediator, assigning special phases of work to the organization best fitted to carry it out as his judgment might indicate. Such decisions would not be binding and from them an appeal could be taken to the majority opinion of the council as a whole, all of whose members would have at least a reasonably intelligent conception of the fitness of the presiding officer's decision.

Aside from the fact that such a representative council would stimulate the state health department to greater endeavor and would serve as a check upon those officials inclined to shirk their responsibilities, there is no question but that they would bring to the department not only technical guidance of a specialized character, but also information as to the need for general health activities in the several sections of the state. On the other hand, the recognition of the extra-governmental agency by this official branch of the state government could not but strengthen the organization and give it more or less recognized standing in the commonwealth, depending upon the popularity and strength of the health officials of that particular state, while the close association with governmental agencies would permit the utilization, to a certain extent at least, of the legal power and authority possessed by the state, but denied to volunteer agencies, yet which is essential in bringing about lasting reform.

Where Difficulties Might Exist

Objection to this plan may present itself on the ground that in some of the states the public health departments are so weak, so inefficient, or so politics-ridden as to be unfitted for this large measure of leadership. It is possibly true that in some states there exist single, extra-governmental organizations better financed and quite as influential as the official health department. If this is true, the paramount need of that state is the development of sentiment looking toward a strong official health organization and the coordinated extra-governmental agencies should be engaged in nothing more important than this project.

The further objection that certain state health officials are notoriously antagonistic to extra-governmental agencies, is not an argument against this plan, but rather one distinctly in its favor. The public health worker who will brook no suggestion or interference on the part of the people in what is essentially the people's business, is sorely in need of the disciplinary effect which the

wide dissemination of the knowledge of his narrow attitude would in most cases bring about.

V.

The United States Public Health Service maintains toward the health departments of the several states very much the same relationship that the volunteer national health organizations maintain toward their state representatives. Fortunately or unfortunately, in the creation of the Federal government, the states retained to themselves the supervision and control of public health matters and, consequently, the United States Public Health Service assumes a relationship with state health departments which is advisory and helpful rather than mandatory or dictatorial.

Since the policies of this relationship have been reasonably modified, the contact between the Federal health authorities and those of the several states has become close and exceedingly helpful, the conferences of state and provincial health authorities with the Surgeon General of the Health Service bringing about coordinated action which is becoming more and more satisfactory to all parties concerned.

It seems thoroughly practicable that a conference of national volunteer associations, including commercial, civic, industrial, and other agencies vitally interested in health, might organize itself, with the United States Public Health Service as its rallying ground, and the Surgeon General of the Public Health Service as its permanent, presiding officer and that, through such an arrangement, there could be established as satisfying co-ordination as could be produced in the individual states in accordance with the plan that has just been described.

State organizations, as a rule, are active and executive in character, reaching, at least indirectly, the communities and the people. National health agencies, as a rule, are advisory in character and devote themselves largely to the development of organization. Within the state, it is vitally important that the extra-governmental health and social agencies shall be coordinated, but it is just as essential that the national bodies, in their advisory capacity and in guiding the general courses of work within the states, shall have just as close cooperation and just as clear an understanding of the points of contact between themselves and other bodies engaged in carrying out similar or related programs.

Out of the observance of Health Promotion Week in Illinois, set aside by the General Assembly for the bringing together of health and social and allied agencies to prepare for reconstruction work, there has developed an advisory council in Illinois created along the lines indicated in these

pages. While it is yet too early to determine or even to speculate intelligently upon the outcome of this experiment, it may be said that on the part of all of the organizations party to it, there is a reasonable hope that it may be the means, though subject to repeated and radical changes, for the solution of the most serious administrative problem in the development of our social and public health activities.

SCHOOL HEAD URGES HEALTH STUDY

Reading, writing, arithmetic, and health were pronounced the essential studies for American boys and girls by Charles E. Chadsey, superintendent of schools of Chicago, in an address before the American Physical Education Association during April, at the twenty-third convention of the association, held in Chicago.

Both Dr. Chadsey and Professor Charles H. Judd, director of the College of Education of Chicago University, appealed to the members of the Physical Education Association to work out a standardized program in the science of health that will enable cities and states to introduce it as a required study in the schools.

"I want to charge the physical director with the responsibility of devising a method, which, when put in practice, will give the physical instructor exact knowledge of the actual physical condition of each individual child under his supervision at all times," said Dr. Chadsey in defining his ideal and its purpose. "Then I want him to do for each pupil who is below normal that which will make him a normal individual."

He expressed the hope that before long physical education and health instruction will be given a place in the educational system that will make health a subject of coordinate importance with the studies which have intellectual training as their object.

Professor Judd termed the study of health a "science of personal fitness." He asked the association to "intellectualize" physical education—to think less about arm movements and more about the application of health rules, hygiene, exercise, and corrective or preventive teaching in personal living. Psychology, he said, should be linked with physiology.

Major General Leonard Wood, commanding the Central Department of the United States army, described the results of corrective, remedial methods which the army adopted to reclaim its unfit men.

The remedial or development battalions corrected or improved the physical deficiency of every man sent to them for treatment, he declared. He defined the policy of the army as that of betterment for every soldier.

Dr. Thomas A. Storey, secretary of the Interdepartment Social Hygiene Board at Washington, and vice president of the National Council of the Physical Education Association, outlined a program of national and state health legislation looking toward the achievement of the goal marked off by General Wood, Superintendent Chadsey, and Professor Judd.

William Burdick, M.D., president of the National Council of the association, reviewed the activities of the association and its members during the period of the war.

J. H. McCurdy, M.D., physical director of the Y.M.C.A. with the American Expeditionary Forces, and secretary-treasurer of the Physical Education Association, told of his work abroad.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., Editor

REHABILITATION OF DISABLED SOLDIERS

THE war has taught many lessons in the conservation of man power but none which has had more profound effect than the program instituted for the physical and vocational rehabilitation of wounded men. In other wars the disabled men have returned to their home communities, perhaps after having been granted pensions, and have been allowed to live out their lives as objects of charity. There has been a general feeling that when a soldier has offered his life for his country, and has been disabled, the country owes him a livelihood without any further effort on his part. Such a course has been disastrous to the men themselves because of the effect it has had upon their morale. It is not kindness to a man to make him dependent and to allow him to feel his dependency. Few active men desire to remain helpless even though they may have their direct physical wants cared for. There is a divine discontent possessed by most people which encourages them to increase their earning capacity. Dependence breeds dependence and when a man has become confirmed in it he is not only satisfied with it, but constantly increases his demands for assistance. This is true whether a man has the glory of the fighting man to sustain him or whether he has no legitimate claim for increasing charity.

At the beginning of the war the Federal government took the first steps in the plan for rehabilitating soldiers by providing the war risk insurance plan which scientifically distributed the losses from disabilities of war service. Instead of relying upon payment of pensions the government instituted insurance for which the men paid the larger part, but to which the government contributed. Under this plan the men were entitled

to payments according to the disability sustained and for medical service after their discharge from the army during their periods of disability. It is not a gift; it is a plain business proposition. Insurance principles were applied and so far as the men were concerned it was no different than if they had applied for casualty insurance in a private company, except that the extra hazards of war were borne by the government.

The next step was the organization of the physical reconstruction service of the Surgeon General's department wherein it was provided that complete restorative treatment should be given before the men were discharged from the army. Business principles combined here with humanity, to establish the idea of restorative treatment. Since the Bureau of War Risk Insurance must pay throughout the period of disability, it becomes clear that the best type of medical service must be instituted so that the disability should be as limited as possible.

Fortunately, the idea was more clearly seen than it has been in the case of workmen's compensation insurance for industrial accidents. When men were discharged from the army, they were turned over to the Bureau of War Risk Insurance, which paid them for the disability in proportion to its severity. Here again it was recognized that medical service would save dollars in the prevention of increased and prolonged disability. Medical service has, therefore, been instituted to serve disabled men after their discharge from the army.

But another step was needed to complete the process of rehabilitation. A man might be partially restored physically, but be unable to carry on any gainful employment or be incapacitated from carrying on the work of the vocation in which he had been schooled before being injured. A man whose trade depends upon his right arm

would be helpless if that arm were gone. Men whose work depends upon keen eyesight would be prevented from carrying on their work by even slight impairment of vision. The loss of a man's trade through disability is a serious blow to his independence. Unless he can be restored to effective working power he is pretty likely to deteriorate and become a charge upon the insurance system.

Early in the war Congress passed the vocational rehabilitation act and placed upon the Federal Board for Vocational Education the duty of studying the problem and developing courses to meet the needs of disabled men. Under the plan a nation-wide vocational training service has been established. Several thousand cases have already been examined, and hundreds of soldiers are receiving training in many types of skilled and semi-skilled trades and in the professions as well. When a soldier or sailor has been released from the service and is entitled to receive compensation for injury from the war risk bureau, he is entitled to receive vocational training under the direction of the Federal Board. It is not compulsory, but every inducement is held before him to take the training. Efforts are made to reach men directly, and also through their families and friends before they develop habits which tend to incapacitate them for further effort.

The object of the physical restoration and vocational training as developed by the Surgeon-General's office, the Bureau of War Risk Insurance, and the Federal Board of Vocational Education has been to inspire men with the idea that disability does not mean dependency, and that there is a chance for each man to be an effective worker in spite of such handicap. As soon, therefore, as possible the restorative stimulus of hope is applied and men are given a new heart to look forward to an active part in the nation's work. The whole system is a high tribute to the vision of those who saw that the conservation of man power is one of the vital needs of the nation.

MOTHERHOOD AND CHILD WELFARE

ONE of the notable, truly significant prece-
dents that the reconstruction period is bring-
ing about is the phenomena of two great social
forces of widely separate origin, coming together
to form a junction. The one is an outgrowth of
medical science having its inception and growth
in service to humanity; the other is a popular
movement carried on by propaganda.

The first is the knowledge, help, and profes-
sional service of the physician in organized ma-
ternity care and protection for mothers. The

legislation that has been enacted in the states of this country and in other countries for the protection of mothers, and the service rendered by city health departments and other agencies for the care and protection of pregnant mothers, has made an organized work of that which was formerly an individual matter between an individual physician and his patient. A work thus organized and vested with statutory power becomes a force in the social life of communities.

The second great force, which developed from another source and now joins itself to the first, is the child welfare movement. It has created standards for the protection of the child and has embodied these standards in the statutes.

Between the child welfare movement and maternity medical and nursing service, including prenatal care for mothers, there is apparent a practicable and applicable unity of purpose. Those who enjoy the privilege of leadership control in the work of child welfare agencies see clearly the advantage of a junction of the two activities.

The public school was the first point of contact in organizing the work of child welfare. Whatever success has attended the movement has come by the slow and difficult process of forming many successive points of contact with children and parents. One of the points of contact is the public playground. Another is the medical examination in schools. Experience has shown that a starting point earlier in the life of the child than the age at which he enters school must be established. Those who are alive to the vital problems that affect the health of the child in the pre-school period know that many of the handicaps with which they have been dealing might have been prevented if they could have reached the child earlier in life. They know that if the young child can be safeguarded against preventable physical ills and defects, their problems will be largely solved. Realizing this, they are seeking a starting point in the home, while the child is an infant. They are turning their attention to maternity care and nursing service for mothers.

England made an advance in this direction during the war by extending the facilities for maternity medical and nursing service within reach of every family, as a war measure, its purpose being to repopulate the nation and replace the losses of life in war. The present-day problem is in educating mothers to the use of these facilities. The Local Government Board has set a standard for the entire land. According to Sir Arthur News-holme, chief medical officer of the Board, the time is coming when every home in which there is a child born will have access to the service and guidance thus provided.

OCCUPATIONAL THERAPY IN CIVILIAN HOSPITALS

BY G. CANBY ROBINSON, M.D., ASSOCIATE PROFESSOR OF MEDICINE, WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, ST. LOUIS, MISSOURI*

THE lessons of the war, which have been learned in the cruellest school of experience of all time, must be translated into civilian use for future generations. This is the paramount duty of the present, to which all efforts must be bent at this time for years to come. The new outlook for the physically handicapped is one of these great lessons, and every one should strive with determination to make the most of it for future humanity. The adoption to civilian life of the methods for the conservation of man-power which have been so important during the war is one of the problems of the hour.

The Workshops in Hospitals

This thought has taken hold of many people in our community, St. Louis, Missouri, and there the problem of the physically handicapped is being attacked from several points of view. A group of people have come together, representing the Council of National Defense, the public schools, the two University medical schools, the medical institutions conducted by the city, the St. Louis School of Fine Arts of Washington University, the ninth district of the Federal Board for Vocational Education, the Rankin Trade School, and the Junior League, as well as business and financial interests. This group has established ward occupations and curative workshops in the City Hospital of eight hundred beds, in the City Sanitarium, which cares for twenty-five hundred insane patients, and in the St. Louis Children's and the Barnes hospitals, both affiliated with the Washington University Medical School. It is making efforts to introduce occupational therapy through the Red Cross into the hospital of the Public Health Service and through the St. Louis Tuberculosis Society into the city institution for the care of tuberculosis patients. A school has been established for the training of teachers of

THE CURATIVE POWER OF WORK

Occupational therapy is a curative agent which should be at the disposal of every member of a hospital staff.

Occupational therapy should be available in private practice and should be carried to the homes of the well-to-do.

There should be trained teachers serving as private practitioners to carry out the doctor's orders of prescribed work.

The impetus given to work as a curative agent by the war will, it is hoped, continue and increase for the benefit of future generations.

occupations in which the School of Fine Arts of Washington University and the various hospitals have cooperated.

Two of the hospitals in which occupational therapy is being conducted, are used extensively for medical teaching, and as the medical students are seeing and assisting in the work, it is to be confidently expected that in time they will become doctors who will have a knowledge of and interest in occupa-

tional therapy. This we consider an important point in its development.

There has, also, been established a placement bureau for the physically handicapped, under the auspices of the Red Cross, which has undertaken the industrial placement of patients from the workshops and from any other source and has co-operated in other parts of the work.

Work as a Curative Agent

The organization and incorporation of the St. Louis Association for the Promotion of Occupational Therapy is underway. This Association has for its objects the training of teachers of occupational therapy, the conducting and extending the use of occupations as a curative measure, and the undertaking of anything which may improve the industrial and economic conditions of the physically and mentally handicapped. It is the hope of the association that it may eventually establish various activities which will bridge the chasm which now exists between the hospital world and the industrial world—the chasm into which so many have to look when leaving the hospitals and the passage of which is fraught with so much danger and depression.

The first curative workshop established in St. Louis has been in successful operation for more than two years. It has been established in connection with the dispensary and affiliated hospitals of the Washington University School of Medicine. It has been financed by the Junior League of St. Louis, and is conducted by a committee com-

*This paper was read before the International Conference for the Disabled, New York City, March 16-23, 1919.

posed of equal numbers of the medical staff and social service department of the Medical School and of the Junior League. Weaving, cement work, toy making, woodwork, and sewing have been carried on. A variety of patients have worked in the shop, most of whom have come from the large general dispensary, conducted by the medical school.

The men and women, old and young, who have worked in the shop have presented various types of illness and disability. Functional and organic nervous disorders, heart disease, nephritis, exophthalmic goitre, resected joints, chronic arthritis, and a variety of surgical conditions represent the majority of the cases. Because of this variety, many problems have been presented, and frequently hydrotherapy, massage, and medical treatment have been carried on simultaneously with occupational therapy.

The Types of Problems

The writer has had an opportunity to follow closely the therapeutic value of occupations in these cases and has endeavored to form an opinion as to its merits from the point of view of the physician interested primarily in the treatment of the type of cases commonly met with in civilian practice.



Toy making has curative value in the recovery of these girls, who are suffering from nervous ailments.

tice. In order to show the basis for the opinion which has been formed, a brief account of what has been accomplished in a few cases illustrating different types of problems will be given.

A rather frail looking man of thirty-one years entered the dispensary with the statement that he had heart disease, and had not been able to carry on his work as a paper hanger for fifteen months, during which time he had been practically idle except, as his history revealed, for his constant thoughts about himself. He was thoroughly discouraged and disheartened. Although his symptoms were such as could be accounted for by heart disease, a searching examination failed to show any evidence of a cardiac disorder. A statement of the facts did not convince the patient, so he was sent into the shop to be shown what he could do. He soon became interested and encouraged, and after several months during which time he became an excellent wood worker, he was ready to go back to outside work. He became one of the greatest assets of the shop by encouraging the newcomer, and by setting an excellent example of industry and workmanship.

The same process is being successfully carried out in a young man of thirty who has done nothing for nine years except take out patents on one or two unsalable devices. His symptoms were nervousness, palpitation of the heart, and weakness. This man had to be taught not only to assume a new attitude toward his anatomically sound body, but his sympathetic wife, parents, and sister also have had to be educated. He is now working away with a determination which has come with his first real accomplishment and he is convinced that life holds much more for him than he had ever hoped for. These cases illustrate the educational value of occupation as well as its value in directing the thoughts away from the supposed ailments.

An Aid in Vocational Placement

Occupational therapy in civilian medicine has proved very useful in determining the capacity for work of patients with definite organic disease. It is difficult or impossi-

ble to say, by means of an examination alone, no matter how extensive, how much work a man can do without serious symptoms. His own history, too, is often misleading. But watch that

man at work for a few weeks and the amount and type of work he can do become clearly determined. Then vocational placement can be done with the proper medical basis. This point was well illustrated by the case of a young man of twenty-nine who, five months previous to his appearance in the dispensary, was attacked by acute articular rheumatism, which had resulted in a badly damaged heart. He had worked at installing telephones, doing both inside and outside wiring. His company, he said, was willing to continue his pay during six months of incapacity, and, as five months were already gone, the outlook for him, his wife, and two children was dark. Two or three attempts to work had only served to aggravate his symptoms, a fact that was easily understood when he was examined. His

heart was found dilated and signs of serious valvular heart disease were present. The man was sent to the shop and set to weaving for three hour periods. In a week this was increased at his request to a full day and very soon he stated that he felt distinctly better. His appearance changed noticeably; he became brighter, held his head higher and the expression of constant worry disappeared. In three weeks he had demonstrated to our surprise that he could sit and weave all day and go back and forth from his home without symptoms provided he was careful. The placement bureau then took him in hand and had him reemployed by the telephone company, but now as a checker of accounts in which his past experience was of value. This man has now been at his new work four months, is carrying on without discomfort, is earning just as much money as he did previously, and a recent examination showed that his heart is in better condition than when he left the shop.

Workshop Remedies Heart Disease

Occupational therapy has proved very beneficial to cases of heart disease and our routine now is to start it while the patient is in the ward of the hospital and have him return to the shop daily

during the period before he can resume his old work or be placed in a new job. These patients do better when they come back regularly to the shop than they do when they remain supposedly



A sufferer from heart trouble who finds relief and assistance toward recovery at the loom.

in perfect quiet at home. One patient, a man of sixty-two, was sent to the workshop after having been prohibited from working by his physician for a period of two years on account of attacks diagnosed as angina pectoris. Although his shop work, at first, required no effort, he voluntarily began to do heavier work without pain or other symptoms. And when he was discovered one day carrying cement garden benches about with enthusiasm, his physician saw the error of his prognosis. The man was told that he could go back to his old work as a furniture polisher, which he has successfully carried on now for eighteen months with renewed energy and with real joy.

Women, Too, Do Shopwork

Women work in the shop as well as men, and in several instances mothers of families have been restored so that they can take up again the laborious, never ceasing household duties greatly to the benefit of their children and husbands as well as to themselves. In one or two instances, women patients who had considered themselves doomed to lonely lives of invalidism, have discovered their mistake while in the shop and have left to be happily married.

Our experience with bed and ward occupation

has been less expensive than with the curative work-shop, but it has sufficed to demonstrate that well directed work brings with it cheer and encouragement in medical, surgical, and obstetrical wards. Basketry, toy-making, and bead-weaving can be carried on by at least 25 per cent of the patients when in bed and are used especially during the period of convalescence when patients are most apt to find fault with doctors' orders, the nursing care, the hospital food, and the administration. Work directed with cheerfulness, sympathy, and with an understanding of the patient and his condition, transforms many a patient from a grumbler to a contented and even enthusiastic hospital inmate. The expressions of interest and satisfaction which are so frequently heard from the patients are the best arguments to convince the indifferent or doubting doctor, who soon comes to prescribing work. The improvement of ward and hospital morale is striking. Work has produced a very marked effect in a ward reserved for the treatment of women with venereal disease in the St. Louis City Hospital and the nurses testify that the ward is easier to manage and pleasanter to work in.

When once occupational therapy becomes established and is properly conducted in civilian hospitals, the hospital superintendents come quickly to see how by the improvement of the spirit of their institutions their burdens are lightened and the work made more successful.

But perhaps the essential question which the doctor must seek to answer is: do these effects assist materially in restoring the deranged bodily functions, do they hasten the approach to health, and do they increase the resistance to disease? Leaving aside those cases in which occupations furnish directly the special exercise essential for the functional recovery of a joint or muscle, the question resolves itself into the effects of preoccupation and of mental, moral, and physical stimulation of well directed work. Our opinion may be emphatically expressed that occupational therapy is a curative agent of very real value in the variety of ailments met with in general civilian hospitals. It is a curative agent which should be at the disposal not only of every member of a hospital staff, but should be available in private practice. Occupational therapy should be carried to the homes of the well-to-do. Many an invalid could receive its benefits when trained teachers are ready as private practitioners to carry out the doctor's orders of prescribed work.

It is our hope then that the impetus given to work as a curative agent by the war will continue and grow for the benefit of future generations.

NATIONAL PHYSICAL EDUCATION SERVICE

With the aid of legislation, lectures, magazine articles, and the publication of pamphlets on the promotion of physical education, the Playground and Recreation Association of America, through the newly created channels of the National Physical Education Service, is striving to give impetus to the movement for universal physical education in the schools.

The Service represents the cooperative effort of more than thirty state and Federal organizations that are working to secure legislative support for a program of physical education.

DISEASE AND WOUNDS AS CAUSES OF DISABILITY IN THE ENGLISH ARMY

The compiled figures on pensions by the English Ministry of Pensions throw much light on the relative distribution of disease and wounds in the great war. While the prevention of disease in the armies has been a triumph for the physician, there has been an equal triumph in the restoration of wounded men and the relative importance of disease and wounds has not been changed as much as might have been expected.

Out of a total of 421,877 pensions granted, tuberculous and chest complaints were responsible for 47,078 or 11.2 per cent; rheumatism for 27,424 or 6.5 per cent; heart disease, 41,699 or 9.9 per cent; nervous diseases, 25,165 or 6 per cent; epilepsy, 4,257 or 1 per cent; miscellaneous diseases, including Bright's disease, debility, ulcer of the stomach, varicocèle, enteritis and malariae, spinal, appendicitis, amounted to 81,381 or 19.3 per cent.

Altogether, the number of persons pensioned on account of wounds was 42 per cent of the total as against 58 per cent on account of disease.

GERMANY'S SOCIAL INSURANCE COSTS MORE UNDER NEW CONDITIONS

The *Monthly Labor Review*, published by the Bureau of Statistics, United States Department of Labor, prints a translation of a recent article on "Social Insurance in Germany After the War," by Professor P. Moldenhauer, which originally appeared in the *Kölnische Zeitung*, in December. An unfavorable development of the actuarial bases of social insurance has come about, writes Professor Moldenhauer, who inquires whether Germany will be able in future to discharge its obligations with respect to social insurance, under conditions more difficult. He explains the problem as follows:

"The war has shifted the actuarial bases of social insurance to the disadvantage of the insurance carriers. Owing to undernutrition, women's labor in establishments not suited therefor, overexertion, excessive overtime and night work, and suspension of numerous protective regulations, the morbidity, invalidity, and mortality rates have risen. The successful combating of tuberculosis has been interfered with during the war, and the ravages of this disease have been increased by undernutrition. The unfavorable state of the health of ex-soldiers, especially of disabled soldiers, who sooner or later will file claims for pensions, must also be taken into account. The strongest evidence of this development is to be found in the sickness insurance. According to the yearbook for sickness insurance for the year 1917 the average morbidity rate in fifty-one sick funds distributed over the whole Empire rose from 2.66 per cent in 1915 to 2.77 per cent in 1916 and to 3.03 per cent in 1917. A further increase of the morbidity rate is expected for 1918. The yearbook states that, as a result, the prewar rate of contributions of 3.5 per cent of the earnings of the insured will have to be raised to 5 per cent."

THE MEDICAL SCHOOL AND CHILD WELFARE

BY FLORENCE BROWN SHERBON, A.M., M.D., UNIVERSITY OF KANSAS, UNIVERSITY EXTENSION DIVISION,
LAWRENCE, KANSAS

THE practice of medicine had its origin in the demand of the sufferer that someone relieve his pain. The primitive medicine man made a "bluff" at doing this and frequently his patients recovered, whereupon he modestly took unto himself the credit. If his patient died, he had it distinctly understood that the gods had reasons of their own for removing the sufferer in spite of his unquestioned skill.

From this crude beginning empirical medicine has come a long and hilly way, aided by the uncertain staff and script of incantation, bleeding, purging, sweating, analgesics, antipyretics, etc. With the work of Pasteur, Koch, *et al.*, a definite part of therapeutic practice became for the first time arranged in a sufficiently orderly fashion that it might be said to pass over into a science. Drug therapy has made some shift toward exchange of the empirical for an exact and scientifically ordered method of application; while the recent developments in medical biology bid fair to wipe away so many mists and clouds from our scientific horizon that one may not even venture to guess how far we soon may see into the mystery of the physical and mental complex which we call life.

Forgetting the Needs of Many

Organized medical effort still takes the original point of departure, however, and works from the pain back toward relief from the pain, and concerns itself as little as possible with the physical optimum or norm which should furnish the basis for the study of physical and mental pathology and their appropriate therapy. The chief concern of the medical school and of the medical student is to assemble a concrete unit of information and technique which will enable that student to go into a community or a hospital and diagnose disease and apply the accepted remedy of his chosen school or cult. For all purposes of immediate concern to him, humanity is divided into two classes:

FOR A HEALTHIER GENERATION

It is not beside the mark, nor should it be beneath the dignity of the Medical School, for it to formulate courses of instruction for the preparing of practitioners to meet the really fundamental and practical problems underlying the all-important and comprehensive proposition of rearing a generation of children who may be turned into the public school free from preventable physical handicap.

Once this is achieved, the mass problem of the health of the school child becomes automatically solved except so far as the school plant and school curriculum react unfavorably upon him.

nomer, since one cannot prevent and cure at the same time. It is true that a new science has arisen and we are fond of saying that it is a branch or outgrowth of the science of medicine, as if it were a part of a larger whole. This new science is very properly termed public health, and improperly called preventive medicine. Were it not more logical to recognize an all-comprehensive science of health with various subdivisions into, say, community health and sanitation, and personal health, computed on a basis of maximum personal efficiency as scientifically determined; then as another subdivision let us place the various deviations from the norm or optimum. Let these pathological manifestations then appear in their true relations and gradations, with their logical causes and remedies. Let us have primarily students of the science of health who, if you please, may elect to specialize in medicine, or in the cure of disease rather than in any of the particular phases of normal life and its conservation. The science of health, by this token, is more inclusive than the mere prevention or cure of disease, being in fact carried out to its logical limit of an ultimate maximum in the physical attainment of the race.

To illustrate the point that now we are making the whole subservient to the part, and that present-day medical education, although much the best thing in this way the world has ever seen, still falls far short of comprehending the science of health, let us consider the matter of the health of the school child.

those who need a physician, and those who do not. He has no standard for appraisal of the child or adult who does not manifest some pathology which he has been trained to recognize.

A Broadened Science of Health

Since the word medicine means "to cure," or "to heal," perhaps this limitation is legitimate. The popular term of the moment, "preventive medicine," is then a mis-

When the health of the school child became a matter of active concern the physician was called in to diagnose pathological physical conditions; then physician and educator combined forces to devise ways and means of having these pathological conditions treated and cured. Too much of the effort of the school physician must still go into this illogical process of mending what should never have been permitted to need mending. Gradually, however, the problem is assuming organic shape and at the present time a determined effort is in progress to establish, as a basis of health work for school children, a physical norm, from which the effort to achieve standardization may logically proceed. The scheme launched by the Child Health Organization, 156 Fifth Avenue, New York City, for the study of the nutrition and development of the school child, and simultaneously to enlist the child's interest in his own condition, is nothing less than inspirational. At the present time hundreds of thousands of school children are being weighed and measured, and the resulting tabulations will furnish one of the most gigantic pieces of health research ever accomplished. At the present time, however, professional physical examiners of school children are self-trained people who have added to their knowledge of the therapeutics and pathology obtained in the medical school such information concerning normal physical development as they might have the interest and initiative to get from some department of physical education, or from reading and from experience. As far as my present knowledge goes, there is no medical school which pretends to offer specific vocational training for this highly specialized, difficult, and increasingly important professional calling.

It may be that the reason for this lies in the fact that at the present time there is no accurate or scientific fund of knowledge concerning the normal development of the child. We are compelled to work by the measure of certain meager averages which we do not as yet even know how to interpret.

It would seem, however, that such knowledge as we have might profitably be assembled and imparted in an orderly manner to the would-be specialist in the health of the school child. This would economize the time and expense of the student, and make for standardization and cumulative efficiency.

The graduate of the medical school who essays the physical examination of school children for the purpose of physical evaluation, apart from the recognition of definite medical pathology, finds himself confronted by a proposition for which he

has neither chart nor compass. He knows little about the phases of growth through which the child's body must pass or the salient characteristics of each phase. He knows little, unless he be also a physical education expert, about posture, or physical measurements, or normal proportions. Still less does he know, until he learns by much experience, how to interpret the etiology of the varied and often vague nervous and nutritional manifestations which his eye will come to recognize.

School Physician Works Against Odds

It takes an unreasonable amount of this would-be specialist's time for him to train himself to recognize the manifold pre-pathological conditions which must be the basis of constructive health work for the child.

It takes an unreasonable amount of his time for him to train himself to recognize the many points of reaction of the school environment upon the child.

It takes a much longer time for him to acquire an appreciation of the diverse reactions of the home and street upon the health and physique of the child.

We are placing the school physician upon our leaking educational ship and asking him to bail out the physical defects of our school children which threaten to capsize their mental attainments. It were logical if we first trained him to stop the leaks as rapidly as possible. Instead, he must find the many leaks himself, and not only so, but he must find for himself the requisite tools for mending them. Too often he is content with bailing, and so is the school system and the community. The attitude is, "Bailing's all right as long as it keeps us afloat!"

As another illustration of a field of specialization into which the medical practitioner has been drawn willy-nilly and without preparation by the old demand of the laity for help, we will take the present movement for the health of the pre-school child.

Physical examiners of school children have been saying with increasing emphasis, as their findings have accumulated, that most of the radical defects of the school child are upon him when he first comes into the school system. So virgin a field is this pre-school health life of the child that the women physicians who first essayed in 1911 to make physical examinations of children under three years of age could find no record of measurements or averages which might be used as a standard save those contained in Dr. Holt's classic text on Diseases of Children. Naturally, these averages were found too low for the normal chil-

dren (at least normal enough to not be under physician's care) who constituted the subject of this mid-western investigation.

With the spread of the Children's Health Conference, culminating in the Children's Year drive to have every pre-school child in the United States weighed and measured within the year, it has come about that practically every physician in the United States has been called upon to pose as an expert in child development.

The average medical practitioner is nonplussed when confronted by a mother, keen for information and instruction, and one of the first naked babies he has ever seen who was not actually ill. If he does not find signs of the pathology which his eye and touch have been trained to recognize, and if the mother does not tell a story of definite ill health, he is more apt than not to mark the child O. K. and pass hurriedly to the next.

What Is Norm of Child Health?

He is at a distinct disadvantage because he has nothing in his training or experience (unless he be a father, and even then he may see little of his own child's body) to aid him in the understanding or appreciation of the many factors entering into the growth and development of the child's body. What does he know about a norm for each phase of development, and for each part of the body? A stock-judging expert has his eye trained for a norm for every feature of a young animal's body, from the shape and patency of its nose and contour of its head and neck to the quality of the tuft of hair on the tip of its tail.

Granting that the physician has fortified himself with such figures and averages as have become available with the progress of the examination movement, he still has little to help him interpret these. To be able to help the mother, he needs to know how to draw from her graphic information as to environment, habits, food, clothing, psychic atmosphere, exercise, play—in short, he must know how to get a picture of the forces that are reacting on the plastic animal before him.

Even granting that he has successfully constructed this picture, and that it appears to have convincing perspective and unity, he must further have the social training and experience to enable him to appraise the intelligence of the mother and visualize her circumstances. From all this as a basis he must formulate advice which will have some show of being understood and put into practice by the mother, or know how to put her in touch with other agencies of assistance.

For example we will take the posture of a child of three years. It will take the average medical practitioner some time after he begins to look at

naked babies to realize that there is a normal posture for a child of this age and that deviations may already occur. It will take him still longer to recognize that these deviations are significant and may have a distinct bearing upon the efficiency and symmetry of the final shaping of his body. It will take him a very long while to figure out the possible and probable reasons for deviations and get these from the mother who sits dumbly waiting for words of wisdom to fall from his mouth.

Where School Training Falls Short

The average school-trained man will recognize talipes and lateral curvature and pathologic features commonly described in medical literature. The child in question may not exhibit any of these, it may only stand with protruding abdomen, ribs touching each other like the closed slats of an old-fashioned shutter, and show feebly muscled, projecting scapulae.

The physician will be fortunate if his attention has ever been called to the loose, unstable attachment of the shoulder girdle upon the thorax, especially in the little child. He will undoubtedly have learned glibly the names and attachments of all the muscles and have an idea of how to reduce a dislocation or fracture. He will have much to learn of the structural significance of this mechanical arrangement, especially in the growing child.

Granting that this type of posture is noted, he may also note that the general body musculature is lacking in tone. He may rightly infer that better food and more outdoor activity are indicated, and inquire in detail as to diet, exercise, sleep and the various factors contributory to physical vigor.

On the other hand, he may find that the leg muscles of the child are perfectly well developed and taut; also, the muscles of the forearm may be better developed than those of the upper arm. The muscles of the chest and shoulder only will be flabby and undeveloped, allowing the arm to swing loosely, and affording insufficient anchorage to the scapula.

Faulty Posture Harms Infants

If the doctor now presses lightly on the tip of the shoulder, he will be surprised to discover how easily the entire shoulder may be inclined to the front and how sharply the scapula can be made to project in the back. If he will now notice the carriage of the head he may note that the weight of the head is allowed to hang from the posterior cervical muscles. In some cases this deflection in older children is sufficient to change the normal angle of vision, and compression by the habitually stretched muscles may cause induration and pass-

ive congestion, which are etiological factors in certain types of headache.

If the physician will now note the effect of this type of posture upon the rest of the body he will discover (if he try the experiment upon himself) that full expansion of the chest is difficult or impossible in this position. When this is habitual the chest may become muscle-bound through loss of the normal and important elasticity of the rib muscles and the normal expansion of the lungs be constantly limited. He will discover that the tipping of the shoulder blade allows the arm to make a quarter swing which points the thumb toward the back instead of the front of the body. From this position the arm and hand must make the corrective quarter turn before every use made of the hand. During a lifetime this even furnishes an item of considerable impairment in manual efficiency.

If the physician will now notice the segments into which the posture line is broken, he will notice that the forward tilt of the head has compelled the shoulders to find a stable fulcrum in a compensating tilt of the pelvis. This, of course, breaks up the normal relationship of legs and feet and throws the weight center in the wrong place on the foot.

It would make one of many possible subjects for particular investigation associated with this one posture-complex if someone would figure out the probable relationship between this tipping of the pliable pelvis of the female child and malformed pelvis in child-bearing women.

Causes of Child's Wrong Posture

So much for some of the items the physician will train himself to see in a child who may present no organic or strictly pathologic defect. The possible causes of this posture and their appropriate correction is another chapter of the story.

Unless this physician has been minutely observant of ordinary household life and of the daily regimen to which the ordinary child is subjected, it will take him a long time to discover that this child has probably been restricted in its activity to strictly leg and forearm movements; that he has not been permitted to climb or suspend his weight by his arms. He makes small movements with his hands, but almost no whole-arm movements; that there is nothing in the home of the correct size for him to sit upon; that he must crouch over his playthings on the floor or climb into an adult chair; that he has not been encouraged to crawl on all fours, which is nature's way of properly aligning the mechanism of the shoulder girdle; that his stockings have been adjusted for a year or more of his life, even at the age of

three, so that all the pull of their support comes upon the most easily deflected point in his mechanism, viz., the tip of the shoulder.

Physician's Advice to Mother

Other factors may contribute to this condition, including an habitually over-distended abdomen; tying into a buggy for long hours in an over-flexed position; sleeping in too short a bed, etc.

Even after all this has been brought into the focus of the physician's attention—the person from whom this mother must get help, if she is to get it at all—he has still to construct a program of correction. If he is to meet the needs of the child he must outline to the mother a scheme of play which will call into use this most important and entirely neglected part of its undeveloped body. He must tell her how to make simple and inexpensive play equipment which the child will use through pure enjoyment. He will have to explain to the mother of the creeping child the necessity of crawling, the necessity for a play pen, and untrammelled activity. He will bespeak the little chair and play table which are as much the right of the child as are the chair and table of the adult. He will have to overcome the fear of the mother that the child "will hurt itself." He will have not only to show her wherein the clothing is deforming the plastic form of her child, but will have to explain the principle of the correct suspender supporter.

I have hoped to show by this one concrete illustration how closely disease and health are linked together with the intimate, minute, and more or less petty concerns of life, and make the point that effective preventive work must go straight to the humdrum facts of everyday life and establish there a stable point of departure. To be able to do this effectively requires specialized training in method and attitude and to a certain extent in subject matter, and all directed toward the establishing of normal standards of living.

Keep Pre-School Child in Health

The one branch of public health work which is at present well ordered and effective, viz., sanitary science, goes straight into the intimate details of personal and family life. An investigation of an epidemic may end in the question of how a woman washes her milk cans, or whether a baker washes his hands on coming from the toilet. The most trivial human act may have an important bearing upon the health and efficiency of the individual and the community. It is not beside the mark, nor should it be beneath the dignity of the so-called medical school for it to formulate courses of instruction for the preparing of med-

ical practitioners to meet the really fundamental and practical problems underlying the all-important and comprehensive proposition of rearing a generation of children who may be turned into the public school free from preventable physical handicap.

Once this is achieved, the mass problem of the health of the school child becomes automatically solved except so far as the school plant and school curriculum react unfavorably upon him. Spe-

cially trained experts should be forthcoming adequately to safeguard the school life of the child. With this constructive, far-reaching program accomplished there need be no fear of the revelations of another draft.

To accomplish the assembling of a really protective health machinery we must eventually reverse our present order of attack and emphasis and start with the establishment of normal values as fixed points of departure.

LAW FOR THE DOCTOR—HIS LIABILITY FOR FAILURE TO DIAGNOSE DISLOCATION OR FRACTURE

BY LESLIE CHILDS, ATTORNEY AT LAW, INDIANAPOLIS, IND.*

ALLEGED failure to diagnose fracture and dislocation has been the starting point of a considerable number of damage suits against physicians and surgeons. In fact, this particular phase of alleged malpractice has been so thoroughly thrashed over in court rooms that a reading of the reports on cases of this kind would tend to qualify even a truck driver as an expert on dislocations and fractures.

About the only undisputed fact threading its way through the entire argument appears to be that a fracture is in many cases extremely difficult to discover. This fact alone has saved quite a few physicians and surgeons from having to shoulder judgements for alleged malpractice. But once in awhile there appears a case wherein the actions of the defendant physician have been so apparently at variance with the customs of the medical profession that even this fact fails to save him. Such a case was that of Foote vs. Bonnet, 47 Col. 282. The case is an interesting one not only from the point of the facts therein but from the method of defense, or rather lack of defense, employed by the defendant.

Emma Foote, the plaintiff, fell upon the sidewalk one evening and Dr. Bonnet, the defendant, was summoned, arriving a few minutes later. He found the patient suffering severe pain, and expressed the opinion that she had sustained a fracture, but advised her that he would not make an examination until the following morning. The next morning he called and examined her hip by feeling it with his hands and concluded that the injury was a severe bruise and not a fracture; thereafter he treated her for a bruise.

He called and treated her twice a day for about two weeks, and thereafter once a day for about

one month, and after this period occasionally for about two months. During this time he made frequent examinations of the injured limb, took measurements to ascertain whether or not it was shortening, but at no time regarded the injury as anything more than a severe bruise. The patient was confined to her bed for about four weeks; thereafter she was able to walk with crutches, and about four months after the injury she had sufficiently recovered to go to Santa Fe where she remained for several months.

She was compelled to use crutches, or a crutch and cane, for about eighteen months after the injury, and thereafter she used a cane only. She suffered pain more or less for about two years at the end of which time it passed away but would occasionally return. The injury caused a shortening of the right limb of from two to three inches.

During the trial of the case a physician and surgeon testified for the plaintiff substantially as follows:

That about five years after the injury he examined the injured limb, aided by an x-ray photograph, and that this examination showed that the plaintiff had sustained a fracture of the neck of the femur. He admitted that in a fracture of this kind it was often very difficult to ascertain whether there had been a fracture or not; and further, that a severe bruise in the vicinity of the neck of the femur would produce practically the same pain as a fracture. He also detailed the usual method adopted by surgeons for ascertaining whether or not, when the hip is injured, a fracture exists. It appeared from the testimony that Dr. Bonnet had not adopted this method, nor done anything more than has been stated. During the examination of this witness he was asked :

Q. Doctor, if a patient with an injured hip

*The second of a series of articles on "Law for the Doctor," written for MODERN MEDICINE by Leslie Childs.

lie on the back and her foot turns over to one side, what is the indication?

A. Might be a fracture, might be a dislocation.

Q. Would it be one or the other?

A. One or the other.

Q. The indication would be that it was either a dislocation or fracture?

A. Yes. That is, if there was inability to put it back again in place.

The plaintiff was recalled as a witness and was asked:

Q. You may state to the jury what position your foot—the right foot—assumed after this injury, when you were lying there on your back.

A. It lay over on the side.

Q. Did Dr. Bonnet ever see it lying over on the side?

A. Yes, sir. He said he did not like it, although he could not understand why it did that.

Q. Did he straighten it?

A. He straightened it up, and it fell back again.

Q. Did you have any control over it to keep it up from falling back?

A. None whatever.

There was no testimony from the defendant, or in his behalf, that would controvert the facts and evidence as given above for the plaintiff. In summing up the court in part said:

"From these facts and evidence it is clear that the injury to plaintiff's hip was a fracture instead of a mere bruise, and the question to determine is whether or not it appears that defendant was guilty of negligence in diagnosing and treating her injury; * * * the law implies that a surgeon * * * possess that reasonable degree of learning and skill * * * which is ordinarily possessed by others of the profession; second, that he will use reasonable and ordinary care * * * to accomplish the purpose for which he is employed; * * * either defendant did not possess that degree of learning and skill which the law requires of surgeons, or, if he did, he failed to exercise ordinary care in applying it."

The Supreme Court thereupon affirmed the judgement for \$1,500 damages that had been awarded the plaintiff in the lower court.

Official Surgeons Plan Convention

The American Association of Official Surgeons will assemble at Chicago, September 15 to 17, for the thirty-second annual convention of the organization. The meeting will take place at the Congress Hotel. Operative demonstrations will be held at Chicago hospitals.

Make Study of Heating Problems

A better conception of the requirements of heating and ventilation, and a wider application of improved standards, are to be expected in the next few years as the outcome of extensive, well-financed arrangements which have been made for study of heating and ventilation problems both by the United States Bureau of Mines and by the

American Society of Heating and Ventilating Engineers. The Society has organized a Bureau of Research and has named John R. Allen, Professor of Mechanical Engineering, University of Michigan, as director. Other engineering societies are cooperating in the surveys. The Bureau of Mines has an annual appropriation of \$40,000 for the work.

REVIEW OF PUBLIC HEALTH LEGISLATIVE PROJECTS

A review of the recommendations of the governors of the states made to the legislatures of 1919 indicates an intensive interest in the subject of the health and well-being of the people. This was to be expected in view of the influenza epidemic, and particularly in view of the disclosures of the draft regarding physical preparedness and the recognition of the supreme need of strong national vitality. Thirty-two governors made recommendations regarding health covering the subject of strengthening the state health departments, the control of venereal diseases, the development of full-time health officers, physical education, medical inspection of schools, housing, industrial health and safety, the control of tuberculosis, child welfare, and the care of the feeble-minded.

Goodrich Advises Corrective Training

Governor Goodrich, of Indiana, after pointing out the evidences of physical defectiveness as indicated by the statistics of the army, said: "The health authorities all agree that most of the defects and disabilities of these men were due to conditions that might have been prevented or cured in childhood. Physical education is as necessary to the development of our young people as mental training." He recommends compulsory physical education and full-time public health officials. He further recommends the enlargement of the provision for the care of the feeble-minded, including the establishment of a colony.

Governor Lowden, of Illinois, recommended as a health measure the limitation of women's work to eight hours. He also made strong recommendation for a state housing code, declaring that "one of the most frequent causes of disease and debility is improper and insanitary housing. This is probably the largest single cause contributing to tuberculosis. * * * It is not enough that the State care for its dependents; it has a right, as it is its duty, to prevent such dependency wherever possible. Other states long since have enacted laws to prevent the building of houses which would be inimical to the public health."

Governor Smith, of New York, commended the work of the commission investigating the subject of the feeble-minded, and urged the adoption of the program which they submitted. He also recommended that a larger protection should be thrown about children at work, declaring that "no children should be allowed in any occupation injurious to health and the provision requiring physical examination of children should be extended to all employments in which they are engaged." He also took strong ground on the cost of milk, declaring "the present high cost of milk is a public menace. It is unnecessary to describe the misery, disease, and death that follow an inadequate milk supply." He proposed the appointment of a commission to investigate the distribution of the milk supply.

Proposes Revision of Health Laws

Governor Townsend, of Delaware, urged as a part of the reconstruction program a revision of health laws and administration, and promised specific recommendations.

Governor Holcomb, of Connecticut, confined his special recommendations on health to matters concerned with child welfare, and especially the matter of infant mortality. "Every year," he said, "among children less than five years of age, we witness an excessive mortality without its causing much perturbation of spirit. This emphasizes our full responsibility for permitting preventable waste of human life. We have been intelligently concerned about preserving animal life and have carefully provided for the examination of cattle for tuberculosis and of swine to prevent hog cholera and have created a commission to detect and eradicate such diseases among our animals, but we have not been equally or intelligently solicitous of the health, life, and welfare of our children, but have left it to the efforts of charitably disposed citizens."

Governor Brough, of Arkansas, emphasized the necessity of a strong state department of health, and recommended especially the creation of a state sanitary engineer. He further emphasized the necessity for more complete vital statistics and for the drastic control of venereal diseases. He commended the Bureau of Sanitation which has control of the licensing of hotels and rooming houses, and urged an appropriation of \$12,500 for a special campaign against malaria.

Governor Burnquist, of Minnesota, laid emphasis upon sickness in rural districts as follows: "The Legislature should also devise some plan for taking care of the rural health situation, especially in certain portions of this State, where there is a lack of medical aid. The same fight against preventable diseases that is made in cities should be made in the rural districts. More health inspectors should be provided for the country and in communities where hospital facilities are needed they ought to be provided by the State to a greater extent than heretofore." He also recommended the consolidation of state, public health administrative offices, and a large appropriation for the prevention of venereal disease. After commenting on the army statistics he declared for physical training and medical inspection in schools.

Governor Edge, of New Jersey, recommended effective measures for education in health and for child hygiene, saying: "The operation for the national selective service regulation disclosed a percentage of physical disability wholly inexcusable in an enlightened age." Further, he said: "The war has taught us the value of preventive medicine and has given physicians and nurses equal eminence as educators with teachers in our schools and colleges. It has taught us the necessity of a new and more understandable relationship between the home, the school, and the factory; that we must employ the powers of government to protect the bodies of our school children and our young workers from impairment, to save their brains and their souls from starvation."

Pennsylvania Wants Housing Control

Governor Sproul, of Pennsylvania, declared strongly for more complete control of housing problems. "Our larger communities," he says, "can take care of themselves in these matters, but throughout the State there are places where people are living in frightfully insanitary homes, surrounded by conditions which make for bad health and bad citizenship. Especially is this true in some industrial settlements where families are compelled, in order to be near their employment, to live in places which are unfit for human habitation. We ought to have the power to help in this very important matter."

Governor Bartlett, of New Hampshire, recommended enlarged provision for the State Department of Health and urged that a plan be developed for cooperation with

the State College at Durham as a step toward efficiency.

Governor Stewart, of Montana, urged that ample means for meeting contingencies such as the influenza epidemic be given to the State Department of Health. He recommended, also, a survey of the feeble-minded in Montana.

Governor Gardner, of Missouri, recommended a greatly enlarged state health control with an adequate state health department having control over health work throughout the State and full cooperation with the Federal government in the control of venereal diseases.

Governor Cox, of Ohio, made one of his principal recommendations the necessity of reorganizing local health administration, abolishing the 2,100 local health officers and substituting all-time county or district health officers in their places. He also made urgent recommendation concerning the control of venereal diseases.

Governor Sleeper, of Michigan, made similar recommendations for an all-time health officer in each county, working under the State Department of Health.

Urge High Standard of Housing

Governor Coolidge, of Massachusetts, under the title "Man Power" declared: "The salvation of a state, in peace no less than war, depends upon the effectiveness of its population. To secure and promote this the protection of the public health is fundamental. This means, in the first instance, preventive measures. With many of these we are already familiar, and others will be established by research. For such purpose it is recommended that provision be made." More adequate study and provision for the feeble-minded was also recommended. He likewise urged the maintenance of high standards of housing and working conditions, saying: "That same watchful care which has surrounded legislation of housing, sanitation, housing of labor, and conditions of employment in different occupations must be maintained." In a striking passage he said: "No progress was ever made by regarding mankind as cheap."

Governor Milliken, of Maine, recited the necessity of having supervision of health by experts trained in public health and sanitation. He recommended the enactment of a law authorizing towns to combine into districts for the employment of health officers, and that a part of the salary of such officers should be paid by the State. He further urged greater care of children as follows: "It is clearly our duty to insist upon dental and medical examination and treatment of school children, as well as proper physical exercise and playground activities under competent supervision."

Governor Harding, of Iowa, declared for some system of universal service "not so much for the purpose of making soldiers with which to contend on the field of battle as to create an increase of man power to work together in harmony and equality in the battles of peace." He pointed out the appalling number of men "who are physically defective so that they are constantly working under handicaps." Commendation was given to the completed establishment at the state university of a hospital for the care of diseased and crippled children.

Governor Larrazolo, of New Mexico, urged the establishment of a State Department of Health to consist of a commissioner of health and a public health council composed of five members, three of whom should be regularly licensed physicians. He urged that the department should have ample funds. Child conservation was given urgent recommendation.

Governor Boyle, of Nevada, made this interesting observation: "While the State has, through the agency of the

Veterinary Control Service and through the Livestock and Sheep Commissions, made ample provision for the quarantine and proper care of animal diseases, it has allowed the public health laws to lag far behind those of other states which profess to consider this question as important." He said that the Board of Health had been nothing more than a bureau of vital statistics, and urged that the Board be given ample power to meet its proper duties.

Governor McKelvie, of Nebraska, made very urgent recommendations for the control of diseases of farm animals but there appears to be no suggestion in his message concerning the health of human beings. Concerning tuberculosis of cattle, he said: "The enormousness of the loss of farm animals from contagious and communicable diseases and plagues is such that this subject needs prompt and vigorous attention. The most insidious and dangerous of all these diseases is tuberculosis. The Federal government has appropriated a liberal sum for inspection, testing, and indemnification in the control of tuberculosis and the states are called upon to co-operate with both inspection and money. I believe this should be done." It would be somewhat fitting if he had followed this with a similar recommendation concerning tuberculosis among human beings.

Governor Frazier, of North Dakota, urged proper health protection, a full-time state health officer, county health boards accountable to the State Board, and a county school nurse.

Pickett for Compulsory Physical Education

Governor Pickett, of North Carolina, declared strongly for the providing of an appropriation for mental defectives, and urged that marriage licenses be prohibited "to a man afflicted with a contagious disease due to vice." In regard to child care he said: "Every child has a natural right to have every mental and physical defect corrected if it be in the power of medical and surgical skill." "We cannot claim," he said, "to maintain an intelligent, much less a Christian, civilization if a child be allowed to stagger through life under the handicap of a mental or a physical infirmity for the want of a few dollars. Indeed, it is an economic blunder for society to permit an adult to become a mental or physical derelict for want of proper surgical or medical treatment." He urged physical examination of school children and compulsory physical education.

Governor Carey, of Wyoming, urged that the State Board of Health be given full authority and that a full-time state health officer be provided. He also urged that there should be established a laboratory where examinations of a pathological nature could be made. He made this observation: "We are spending large sums of money to protect our livestock from disease, but I fear we have been overlooking the welfare of our people."

Governor Cornwell, of West Virginia, urged the strengthening of the State Health Department. "Its activities must no longer be confined to dealing with epidemics, but it must consider the dissemination of information regarding preventable diseases as well as bettering general health conditions through better sanitation, better food, and better water." He calls attention to the increased use of habit-forming drugs and urged the strictest legislation regarding their sale.

Governor Lister, of Washington, urged larger appropriation for the State Board of Health and especially for enlarged service for the control of venereal diseases.

Governor Graham, the retiring Governor of Vermont, strongly urged medical inspection in schools and the re-

tention in institutions of inmates until cured of venereal diseases, and an enlarged appropriation for fighting tuberculosis.

Governor Norbeck, of South Dakota, strongly recommended health inspection in public schools and the employment of a nurse or health instructor in schools.

Promote Doctrine of Sanitary Living

Governor Manning, of South Carolina, urged better housing conditions for the poorest mill worker and tenant farmer "and the dissemination into the isolated rural sections of the doctrine of sanitary living so that the people may be taught to prevent disease and to treat it when it falls upon them." Without specific recommendations, he set forth a vision of general public welfare.

Governor Beeckman, of Rhode Island, confined his recommendations concerning health to child welfare and urged that effort should be "directed to the prevention of those harmful conditions which destroy or limit the child's chances of developing into a healthy and mentally well-balanced member of the community in which he lives.

Governor Brumbaugh, the retiring Governor of Pennsylvania, strongly commended the State Department of Health and urged the full support of the Assembly.

Governor Withycombe, of Oregon, suggested the desirability of establishing a hospital for industrial cripples in conjunction with the University of Oregon Medical School, and that a section of this hospital be devoted to the care of indigent and crippled children.

Governor Robertson, of Oklahoma, pointed out that the recent epidemic had emphasized in an appalling way "the inadequacy of the resources available to our State Health Department, both as regards the size of the organization and the equipment at its disposal." He urged a material increase in appropriation and recommended the establishment of a special bureau of tuberculosis. Further, he urged the necessity of providing inspection in the public schools as well as physical examination of all persons handling food and drink for the public. He also called attention to the necessity of strengthening the cooperation with the Federal government in the fight against venereal diseases.

[A complete review of new health laws will appear in a later issue.]

A MEDICAL BASIS FOR MENTAL HYGIENE

A sound medical knowledge, coupled with a thorough understanding of psychiatric principles, is essential in the equipment of persons who attempt to determine and classify the mental states and ages of children by the use of psychological tests and other means, asserts Walter L. Treadway, assistant surgeon, United States Public Health Service, in *Public Health Reports*, April 11, 1919.

Without the proper medical knowledge and psychiatric study, the investigator will be apt to wrongly classify cases of retarded mental development as feeble-mindedness, or he will fail to grasp clearly the distinctions that separate the borderland cases, in which normal mental development may be attained between childhood and maturity under favorable conditions.

Something should be known of a subject's total mental make-up, including heredity, environment, educational opportunities, and his general health. Retarded mental growth is sometimes the result of physical defects that might be corrected.

Dr. Treadway's paper bears the title, "Some Observations on Mental Defectiveness and Mental Retardation Among Children."

THE MONTH IN MEDICINE

Survey of Current Medical Literature with Editorial Comment

WALTER W. HAMBURGER, M. D., *Editor*

MEDICAL EDUCATION AS REVEALED BY THE WAR

THE effect of the war has been particularly noticeable in medical education and has disclosed many defects and deficiencies in the plan and product of our medical education which in our contentment before the war were unrecognized.

A number of articles under the above title have appeared within recent months. The first, by Edward L. Munson,¹ Brigadier General, General Staff, United States Army, read before the Fifteenth Annual Conference of the Council on Medical Education, called attention to weaknesses in the qualifications of candidates and in the qualifications of alleged specialists and to various other deficiencies of medical education. In a letter to General Munson Dr. Vaughan brought up certain additional points particularly referable to a comparison between the medical officers of the Reserve Corps and those of the Regular Army. In his reply General Munson emphasized the following suggestions for more careful scrutiny of candidates to the degree of Doctor of Medicine:

a. That all candidates for matriculation to the degree of Doctor of Medicine be given psychologic tests to determine their possession of mental qualities suitable for effectively taking up such an exacting science. These tests are now being employed in the hiring of artisans, clerks, etc., with a view to determining probable efficiency in their less scientific vocations.

b. That medical schools whose curriculums still appear substandard or imperfect institute proper remedy.

c. That such measures be taken as may be possible to insure that practitioners shall not unduly retrograde professionally after graduation. Some influences operating to interfere with keeping up with professional progress are personal problems relating to initiative, finance, environment, or other matters. Others may be favorably affected through medical societies, meetings, etc. The encouragement of the profession, and especially of the less equipped type, to take postgraduate courses of study at periodic intervals would be very valuable.

d. That more exact standards of qualification in cer-

tain important specialties be required, and that those be recognized by special degrees or certificates, as is now the case, for example, with the Doctor of Public Health degree.

The most recent contribution on this important problem is that of Foster,² who was chief of the medical service of three military hospitals during the period of the war. He brings out some very valuable and stimulating points. He speaks of his early impressions of the medical officers who passed under his observation as a painful revelation and that "the grade of medical competency which was brought out in the military hospitals came as a shock. There can be very little question that medical inefficiency is much more widespread than we have been willing to admit." He notes an instance of one of his young officers who, in spite of having graduated from a Grade A school and having had a good internship in a general hospital, could recognize no clinical picture that required a physical examination and knew nothing of differentiating systolic and diastolic murmurs. The undergraduate teaching of this particular officer had been of the lecture-demonstration-clinic variety. No actual personal instruction had been given. Foster comments further, that the majority of these young, rather untrained medical men retained potential growth and that they developed and grew as they were taught and helped. His summary of his impressions of the general practitioners who came to his notice at camp and hospital is stated as follows:

1. The practitioner of this class cannot differentiate a systolic from a diastolic murmur; in consequence, he is wholly incompetent to express an opinion about a cardiac disorder.

2. He cannot differentiate pleural effusion from pneumonia. He has never done a thoracentesis, so he cannot correct his own tendency to error.

3. He cannot recognize meningitis and has never done (often never seen done) a lumbar puncture, hence he cannot treat the disease.

As Foster properly points out, matters as fundamental as these form the keystone of medical diagnosis and without it the structure collapses. To my mind the most valuable portion of Foster's

¹ Munson, Edward L.: The Needs of Medical Education as Revealed by the War. *Jour. Am. Med. Assn.*, 1919, lxxii, 1050 and 1095.

² Foster, Nellis B.: Medical Education as Revealed by the War. *Jour. Am. Med. Assn.*, 1919, lxxii, 1540.

brief article is his insistence upon the frank and honest recognition of the defects of present medical education in order that progress toward betterment may be made and that scientific care of the sick can be taught only in one place and in one way: that is, in the hospital ward and taught by competent physicians at the bedside with a small group of students; that the art of diagnosis is the ability to examine a patient and gather the important data and properly interpret the findings; and, finally, that the general practitioner is inefficient because he does not know how to examine a patient.

Comment. It may be permitted the writer of these lines to say that during the war he was chief of the medical service at a base hospital for a period of fifteen months, and that many of the points which Dr. Foster brings out have likewise been his experience. During the early months of the mobilization of the draft in the fall of 1917 the general practitioners which were assigned to the medical service were for the most part men of from forty-five to fifty-years of age, men who, as some one has said, could not tell a "rôle from a steam whistle" and who when in college did not burn enough of the well known midnight oil. After graduating and entering into their own communities they ceased to read and develop, became interested in farming and banking, but still constituted the only available practitioners in their communities. Acting as ward surgeons, these men, although the best fellows in the world, kindly, friendly, always ready to sit down and smoke and talk, were at a loss to differentiate a scarlet from measles, a diphtheria from tonsilitis, knew when a meningitis suspect came into its ward the man was seriously sick, but did not know how to elicit nor to interpret a Kernig, opisthotonus, a Brudzinski, not to mention the intricacies of a lumbar puncture and intra spinous therapy.

Later on in the winter and spring of 1918 a different type of medical men was sent to the base hospitals, younger men, either just out of medical schools or hospitals, or men who were ambitious and rather self-sufficient but who, as Foster has said, in many instances could not differentiate a systolic from a diastolic murmur. These men were the material that we had to work with in the care of seriously sick young soldiers and it will always be a miracle that we got by as well as we did. However, with patients, and clinics, and lectures and demonstrations, and bedside teaching, many of these originally rather poorly trained men developed wonderfully. I remember in particular one man from a small school in Kentucky who when he came in was thoroughly in earnest but

poorly trained. Within six months he became one of the most valuable men in the hospital and was put in charge of the contagious group of wards; he developed into a most remarkable expert in the differentiation of skin rashes, chicken-pox, small-pox, erysipelas, meningitis, etc., etc.

One cannot help feeling that the sum and substance of this is that (1) a large percentage of our medical graduates are really very imperfectly trained in medical schools and hospitals; and (2) that, whatever their training and experience have been in schools and hospitals, they seldom add to these after graduation and establishment in practice. Almost everyone who had the responsibility of a service during the war will agree to this, and it would seem that a frank acknowledgment of the situation is necessarily a prerequisite to better things. It is not as General Munson says a question of psychological tests as to fitness, but a question whether in doing his medical school and hospital course the student was given "practical, intimate instruction in the art and science of diagnosis, and whether he was taught to examine patients with the same minuteness and thoroughness of analytical method that is used in the bacteriological laboratory in the differentiation of bacterial types."

The teaching of clinical medicine should not be an attempt, at least at first, to make a diagnosis, but it should be the teaching of *methods* of examination and the teaching and re-teaching of every careful method of eliciting important pathological data. The author for years has in his small clinics insisted upon this point—that the student should by the actual doing acquaint himself with (1) how to feel the spleen, (2) to locate the edge of the liver, (3) to percuss out the left border of the heart, (4) to hear a presystolic murmur, (5) to recognize an accentuated second aortic tone, etc., etc. The interpretation of the significance of these findings will come later; but he must first learn how to use his fingers, his eyes and his ears.

The second point, that is, the development of the doctor after he has left the environment of the school or hospital with all the new attractions and interests that claim his attention in his home community, is indeed difficult. He finds it hard to remain true to his initial youthful enthusiasm. It seems to me that the only way this can be accomplished is so to stimulate the student in his years at school to find truth for himself, in other words so to instill the love for investigative and clinical work, that this desire for scientific truth will remain with him long after he has left the medical center and will guide his interests years later. This, of course, is a more difficult problem, and certain aids such as medical societies, oc-

casional sojourn for postgraduate work are well in themselves; but the real defects in medical education are the defects of teaching and teachers, and the fact that the spirit and the urge of scientific investigation through careful examination of patients was not given these young men at the time when they could best receive it.

SURGERY AND DIETETICS

Recently some one has again said that progress in surgery is to be expected along physiological and chemical lines. This has been appreciated and anticipated by the leaders of the surgical profession for several years. As recently as five years ago it seemed almost heresy for a potential surgeon to put in a year of graduate work in a chemical laboratory. That surgery is developing through the aid of the more fundamental medical sciences is emphasized in a practical manner by Clark's³ contribution on the "Effect of Diet on the Healing of Wounds." This work apparently was stimulated by the work of Hooper and Whipple on blood regeneration after anemia, showing that the rate of blood regeneration on a meat diet is extremely rapid (a matter of days or a few weeks), whereas on a diet of starches and carbohydrates it is very slow (months being sometimes required for complete regeneration). Clark used twelve dogs, putting three on each of the following diets: (1) a mixed diet of butter, meat and bread; (2) a purely carbohydrate diet of bread; (3) a protein diet of lean meat; and (4) a pure fat diet. The dogs were fed on these diets for three days before the wounds were made. Under ether anesthesia a large and a small circular skin-flap was made on each side of the back. As criteria of healing he used Carrel's division of (1) the quiescent period during which time there is no contraction of the wound; (2) the period of granulous contraction; (3) the period of epidermization, and (4) the cicatricial period of complete healing.

The results of these studies are extremely interesting, Clark concluding as follows: "The length of the quiescent period of wound healing is affected by the diet, varies from zero in protein-fed dogs to six days in the fat-fed animals.

. . . As a consequence, the date of final healing differs by about five days for the protein- and fat-fed dogs. When the second period, or period of contraction, has set in, the rate of contraction is not affected by the diet. It is gov-

erned by a variable factor depending upon the age of the wound, and a constant factor proportional to the original size. The period of epidermization is independent of the size of the wound.

Comment. This is preliminary work which was left incomplete because of Dr. Clark's death and is published by Janet Howell Clark. It will need amplification and confirmation; but, assuming that this will occur, and since from the careful manner in which these experiments were made, confirmation seems likely, it opens up many new lines of thought and interest in the healing of wounds. The practical application is obvious and it is to be hoped that further careful work by competent observers will shortly be published and that as soon as it is placed upon a firm laboratory basis practical clinical application will be made. Possibly even this might be justified at present and no doubt clinical surgery will watch the development of this application of dietetics to surgery with kind interest and appreciation.

INJURY TO THE LIVER FROM CHLOROFORM ANESTHESIA

Delayed injury to the liver following chloroform anesthesia is an old problem among surgeons and has been reported officially since 1850. Much clinical and experimental effort has been directed toward the solution of this serious anesthetic complication. Davis and Whipple⁴ present interesting data on the influence of fasting and various diets in the liver injury from chloroform anesthesia. After reviewing the experimental work on this subject with particular reference to Opie's work on rats in chloroform poisoning, they report some feeding experiments on young dogs and puppies, feeding them on special diets and starving some before anesthetizing the dogs with chloroform. During the chloroform anesthesia a laparotomy is performed and a part of the liver removed. The details of their experimental work are too extensive to comment upon individually and those interested are referred to the original article; but the conclusions of Whipple and Davis are of distinct value.

"Starved animals are all susceptible to liver injury from chloroform. The maximal injury is to be expected.

"Sugar, and diets rich in carbohydrates fed in the days preceding the chloroform anesthesia exert a marked protective action against liver injury.

"Fat alone or in combination with food containing fat in large proportions induces a maximal amount of liver injury comparable to starvation.

³ Clark, Admont H.: The Effect of Diet on the Healing of Wounds. Bulletin of the Johns Hopkins Hospital, 1919, xxx, No. 339, p. 117.

⁴ Davis, N. C., and Whipple, G. H.: The Influence of Fasting and Various Diets on the Liver Injury effected by Chloroform Anesthesia. Paper I. Arch. Int. Med., 1919, xxiii, No. 5, p. 612.

"Beef extract has little protection in proportion to its actual food value.

"Skim milk and commercial casein or in connection with cracker are highly protective diets."

No single theory so far adopted will explain this therapeutic action of certain food substances against the liver action of chloroform anesthesia. It certainly is a reaction of the liver cells, not of substance circulating in the blood stream.

These facts should not be lost sight of in the management of any human cases in which chloroform is indicated. The patient should be given liberal amounts of carbohydrates and skimmed milk for at least two days preceding the anesthesia. It cannot be too often emphasized that it is most dangerous to give chloroform to men or animals whenever a fasting period has preceded the administration of the anesthetic.

Comment. Comment is hardly necessary on this work of Davis and Whipple as there is little doubt but that in children and in operations slight in character in which chloroform in greater or less amounts is used or indicated that the carbohydrate-milk diet preceding the chloroform anesthesia will rapidly come into general use, and that the practice of fasting prior to the administration of the anesthesia will be discontinued. Davis and Whipple⁶ in their second paper on the influence of drugs and chemical agents in liver necrosis and chloroform anesthesia come to other interesting conclusions. They take issue with Graham's theory that in the presence of water and oxygen in the body chloroform is split, that hydrochloric acid and carbon dioxid are formed, and that the hydrochloric acid kills a certain amount of liver parenchyma either by chemical action or by secondary asphyxia. Their conclusions from their experiments, considered from a practical standpoint, emphasize the value of epinephrin (adrenalin) and quinin as drugs which will to a great extent prevent liver necrosis following chloroform anesthesia, and they comment that "although chloroform is losing favor as an anesthetic, it is still employed extensively by some physicians. In view of the therapeutic use of such drugs as epinephrin and quinin, it might be well to call attention to the possible practical value of these drugs. In cases of pernicious vomiting, for instance, it would be very dangerous to use chloroform because of the starved tissues, but it might be possible to lessen the tissue injury by means of the drugs mentioned. Epinephrin subcutaneously or intramuscularly in the days preceding anesthesia exert a distinctly protective action against chloroform injury."

⁶ Davis, N. C., and Whipple, G. H.: The Influence of Drugs and Chemical Agents on the Liver Necrosis of Chloroform Anesthesia. Paper II. Arch. Int. Med., 1919, xxiii, No. 5, 636.

MENINGITIS

Progress in the study of the pathogenesis and treatment of meningitis continues. Herrick's original contributions emphasize the importance of the pre-meningitic stage of the disease, the frequency of meningococcal sepsis, and the value of intravenous therapy in meningitis. The most recent contribution from this author⁷ calls attention to so-called extrameningeal meningococcal infection in which paper he reports six cases of meningococcal infection in which meningitis was absent or played a subordinate part in the diseases process. These six cases he lists as follows: (1) meningococcus sepsis without meningitis, either clinically or at necropsy; (2) meningococcus sepsis without clinical meningitis. At necropsy the arachnoid showing beginning edema and hyperemia, the earliest stages of meningitis; (3) subacute meningococcus sepsis, but without other symptoms of meningitis except polyarthritis, in which recovery took place without intravenous treatment; (4) meningitis tarda with prolonged premeningitic stage of meningococcemia of several weeks' duration. Empyema of all accessory sinuses without meningitis; (5) local extrameningeal meningococcus lesion—pleurisy with meningococcal empyema of chest; (6) local meningococcus infection of all the accessory nasal sinuses without meningitis. The author concludes that the term epidemic cerebrospinal meningitis should be abandoned, and the term meningococcus infection should be used to denote such general processes as meningococcus sepsis. Meningococcus meningitis should be the term applied in cases of meningococcus infection with predominant cerebrospinal symptoms.

Several camp reports of meningitis bear out many of the contentions of Herrick, particularly as to the value of intraspinous treatment. Camac and Bowman⁸ speak of the value of intravenous treatment, and instance some cases in which intravenous therapy has attained results when the intraspinous method failed. Stone and Truitt,⁹ reporting on 215 cases from Fort Riley, reach similar conclusions. They particularly emphasize the importance of early energetic treatment and recommend the following plan:

First day: One intravenous injection of from 60 to 80 cc. of serum and two intraspinous injections of from 30-40 cc. each after spinal drainage of from 45 to 55 cc. of fluid, depending upon its pressure.

⁷ Herrick, W. W.: Extrameningeal Meningococcus Infections. Arch. Int. Med., 1919, xxiii, No. 1, p. 109.

⁸ Camac, C. N. B., and Bowman, K. M., Fort McPherson, Ga.: Epidemic Cerebrospinal Meningitis as Observed at General Hospital No. 6, Fort McPherson, Ga., Winter of 1917 and 1918. Arch. Int. Med., 1919, xxiii, No. 1, p. 17.

⁹ Stone, Major Willard J., and Truitt, Major Ralph C., P., Fort Riley, Kansas. A Clinical Study of Meningitis Based on 215 Cases. Arch. Int. Med., 1919, xxiii, No. 3, 283.

Second day: The same, except that from 80 to 100 cc. of serum should be given intravenously, and two spinal injections.

Third and fourth days: If necessary, repeat.

Fifth to eighth days: One spinal injection.

Ninth and tenth days: One spinal injection.

Ninth and tenth days: One spinal drainage daily.

They likewise emphasize the danger of over-treatment; that after the first ten to fourteen days this may do positive harm. This has been the experience of most persons who have seen large numbers with this disease.

Litchfield,² reporting from Camp Grant, discusses ten cases of typical pneumococcus meningitis treated with the specific antipneumococcus serum of Kyes. Of these patients five died and five recovered. This mortality of 50 per cent of apparently proved up cases of pneumococcus meningitis is a most welcome step in a previously considered highly fatal disease.

Still further progress and recognition of specific antipneumococcus treatment is shown in a case report by Weaver¹⁹ of acute streptococcus meningitis with recovery. In this case antistreptococcus serum was used both intraspinally and intramuscularly. Weaver concludes that the improvement which followed each treatment with antistreptococcus serum was striking. In cases of streptococcus meningitis which are usually hopeless, the combined intraspinal and intramus-

cular administration of antistreptococcus serum would seem to be worth trying. The curative action of antistreptococcus serum depends largely on its opsonic content as does that of antimeningitic serum and the serum should "theoretically be useful in such a condition as meningitis in which it can be brought into direct contact with the bacteria."

Comment.—The conception that cerebrospinal meningitis is primarily a sepsis with secondary localization in the meninges is one of the valuable medical lessons learned from the war. Herrick's suggestion that the term "epidemic cerebrospinal meningitis" be abandoned for the more general "meningococcus infection" will receive wide approbation. Similar terminology in disease description has already come into use in such terms as streptococcus sepsis, pneumococcus infection, etc., as well the use of the more elastic terms pneumonitis and pleuritis in place of pneumonia and empyema.

From a practical therapeutic standpoint one would wish to call attention to the necessity of employing large amounts of serum when used intravenously not 2, 3 or 5 cc., but 60, 80 and 100 cc. daily, given slowly, warmed, well diluted, and with due regard to and precaution against anaphylactic phenomena.

COLLECTIVE ABSTRACT ON TUBERCULOSIS FOR THE YEAR 1918

BY JOHN B. HAWES, II, M.D., SECRETARY, TRUSTEES OF HOSPITALS FOR CONSUMPTIVES, BOSTON, MASS.

ANY review of the vast amount of literature dealing with such a subject as tuberculosis must at best be brief and incomplete. Furthermore, such a review must simply reflect the opinion of the person making such an abstract as to the relative importance of the various articles. I have attempted to mention here merely the more prominent articles that happened to appeal to me. I make no pretense that this review is in any way complete, and I tender my apologies to the various writers of important and valuable articles which happened to escape my notice.

Diagnosis

The standards of diagnosis prepared last year for the purposes of the Framingham Tuberculosis and Health Demonstration have proved of distinct value and have been in use all over this

country. Nothing particularly new in diagnosis, however, has been presented during the past year.

Slater¹ calls attention to the greater importance of the study of the history and symptoms as being of more value to the general practitioner than the physical and laboratory findings in the diagnosis of pulmonary tuberculosis. This article is full of sound common sense, and the points that he raises cannot be given too much emphasis.

Smith,² in a scholarly article describing the differential diagnosis, emphasizes particularly those cases of early hyperthyroidism as potential and frequent causes of error.

Meyer,³ from his experience with the complement fixation test, believes that a positive test indicates active tuberculosis, particularly when it has been positive two or three times after being repeated at intervals of one or two months. The complement fixation test, however, will hardly ever be of value to the general practitioner.

Heise and Sampson⁴ compare the findings by

¹ Litchfield, Lawrence: Pneumococcus Meningitis Treatment by a Specific Antipneumococcus Serum. *Jour. Am. Med. Assn.*, 1919, lxxii, 1345.

² Weaver, Geo. H.: A Case of Acute Streptococcus Meningitis with Recovery. *Jour. Am. Med. Assn.*, 1919, lxxii, 1362.

clinical examination with those shown by the x-ray, and are of the opinion that in the great majority of cases the x-ray reveals a lesion more extensive than that found by examination.

Holmes,⁵ in a thoroughly sound and conservative paper, states his opinion that the x-ray should be used more frequently than it now is to supplement the physical examination, but that it should never be used as the sole means of diagnosis. An opinion based on it alone has about the same value as an opinion based on physical findings alone. Without careful history both lose much of their value. Combined with other evidence, the x-ray may be of great value.

King⁶ calls attention to certain extrapulmonary sounds heard in auscultating the apices of young men. The sounds which he describes are undoubtedly motor joint crackles. This phenomenon has long been known as Perez's sign, and was carefully described some years ago by Ewart of London, and three years ago in an article by Hawes.

Hawes⁷ has encountered two types of diagnostic mistakes on the part of the general practitioner: first, those patients in whose lungs the sounds are vague, who are assured by their physicians on account of this that they have no tuberculosis, in spite of the fact that constitutional signs and symptoms are only too manifest; second, patients with acute and subacute pulmonary infections, of pneumococic or streptococic origin, who are diagnosed as tuberculous. In these cases he urges that the history and symptoms are of more importance than the local signs in the lungs, and that with proper care the correct diagnosis can be made.

Adelung⁸ has made a study of the incidence of syphilis as shown by a positive Wassermann reaction among consumptives in California. He apparently takes it for granted, however, that the presence of a positive Wassermann reaction means that the process in the patient's lungs is due to syphilis rather than to tuberculosis. This, of course, is very much open to doubt.

Corper,⁹ investigating the same subject, as a result of the routine blood examination of nearly 2,800 men and women residents of the City of Chicago Municipal Tuberculosis Sanitarium, found a definite, positive Wassermann reaction in 7.2 per cent of the men and 5.8 per cent of the women. This is approximately the same as the percentage found elsewhere in investigations.

Treatment

Nothing new in the treatment of tuberculosis has been offered. Curtin¹⁰ believes that the intravenous injection of iodoform, dissolved in

ether, has a remarkably curative effect, and Matsuda¹¹ reports some remarkable results in the use of Koga's cyanocuprol. These enthusiastic reports will need much further confirmation before they can be accepted.

Nonpulmonary Tuberculosis

A committee of which Dr. Arthur K. Stone of Boston was chairman,¹² has prepared some standards of diagnosis and treatment of tuberculous cervical adenitis. These standards represent an attempt to formulate some definite statements on which the diagnosis and treatment of this condition, which is so extremely common, are to be based. They are similar to the standards in diagnosis and treatment of pulmonary tuberculosis in adults and in children already prepared by a subcommittee of the National Association for use in the Framingham Health Experiment and Demonstration. These latter have proved of immense practical importance and value, and it is expected that these standards in the diagnosis and treatment of cervical adenitis will be equally valuable.

Davis,¹³ from his experience in private practice and in a London County Council school clinic in the treatment of tuberculous cervical adenitis, believes that the removal of tonsils, with suitable anti-tuberculosis treatment, results in the disappearance of the glands in many cases, but in the majority the glands themselves must be removed by operative procedures. He does not believe that tonsils should be removed, however, in every instance, or extirpation made, except after careful examination and selection.

Gauvain,¹⁴ discussing the treatment and training of nonpulmonary tuberculosis, chiefly tuberculosis of bones and joints, believes that tuberculous cripples should be treated conservatively but energetically for as long a period as possible and that treatment should be instituted soon after the onset of the disease. During this time their education, whenever possible, should be efficiently undertaken with special regard to their limitations and requirements. Even the most advanced cases may be very materially benefited. After-care and guidance should be systematically given. He believes that apart from philanthropic considerations the thorough treatment of these patients is not only logical but economically sound.

Schapira¹⁵ calls attention to the difficulty in the diagnosis of renal and genito-urinary tuberculosis. Tubercl bacilli are often found in the urine without subjective symptoms or apparent lesions. Tuberculosis of the bladder is frequent when there are no tubercle bacilli in the urine.

The bacilli are eliminated in showers. During the interval between these it is possible to get bacilli-free urine. Great care is needed in the diagnosis of tuberculosis of the kidney, in view of the fact that tubercle bacilli are often found in patients without tuberculous lesions or symptoms. The finding of a few tubercle bacilli from the urine of a certain kidney is not sufficient to condemn that organ.

Bugbee¹⁶ believes that nephrectomy is the only proper treatment of renal tuberculosis. He does not mention the use of tuberculin, nor does he speak of bilateral renal tuberculosis. No statement as to the treatment of renal tuberculosis can be considered a complete or up-to-date one unless the use of tuberculin before and after operation is mentioned.

Capell,¹⁷ discussing genito-urinary tuberculosis, emphasizes the fact that it is always secondary to tuberculosis elsewhere in the body. He believes that the real curative work in the treatment of such cases is not by the operation alone, but by hygienic measures and tuberculin, both before and after the operation. An early diagnosis is, of course, of prime importance. This article is full of sound common sense.

Tuberculosis in Children

Howell¹⁸ discusses the term "tuberculous infection" as distinguished from "tuberculous disease." He prefers to use the term "the primary lesion of tuberculosis" instead of "tuberculous infection." Following this, he discusses the diagnosis of bronchial gland tuberculosis. He believes that D'Espine's sign is an important diagnostic point. In treatment he emphasizes the fact that air need not be cold, and may be warm as long as it is fresh. Diet should be selected with a view of avoiding indigestion, especially fat indigestion from which such children are very liable to suffer. He advises against tuberculin treatment.

Hess¹⁹ points out that no provision is made for infants in the modern antituberculosis crusade, and believes that unless some such action is taken to care for infected infants, that our present campaign will fall short of its aims.

Bovine Tuberculosis

Marshall and Turner²⁰ recommend that the semi-annual subcutaneous testing of herds should not be continued, because too frequent tests lessen the sensibility of the animals to tuberculin. When a semi-annual test is required, the ophthalmic test only should be used.

Fleischner²¹ emphasizes the same point that a tuberculin test should be accepted only when performed by someone who, from training and ex-

perience, is qualified to decide. He believes that it is only by hard work and careful attention to details that bovine tuberculosis will ever be controlled.

Devine²² calls attention to the tremendous economic loss—over \$25,000,000 per year—to stock-keepers from bovine tuberculosis. He believes that the common wholesale method of condemning cattle because of a positive tuberculin test, performed by someone inexpert and poorly trained in its use, must be condemned. He believes that the tuberculin test is a most intricate one, and that to judge correctly from it as to whether or not a given animal should be condemned requires long and careful training.

Tuberculosis and Pregnancy

McSweeny and Wang²³ urge individualization in each instance in the solving of difficult problems presented by this combination. The Sea View Hospital in New York makes special provision for pregnant tuberculous women.

Norris and Landis²⁴ discuss at considerable length the question of pregnancy and tuberculosis. During the early months of pregnancy, pulmonary tuberculosis has little or no influence. Unless the disease becomes quiescent, however, tuberculous women should be advised against marriage, and, to a certain extent, against conception. Individual treatment is essential because no two cases are exactly alike. After the fifth month it is generally advisable to treat these patients expectantly, and to induce premature labor two weeks before time. Hygienic and dietary treatment should be employed in all cases.

The Discharged Sanatorium Patient

Lyman,²⁵ in a valuable article, discusses the importance of following up the discharged sanatorium patient. He describes in detail the system which has been adopted in Massachusetts by the Trustees of Hospitals for Consumptives of that State. He believes that the Massachusetts system is not only most likely to secure proper medical supervision for the discharged sanatorium patient, but is also calculated to insure a continued interest in the case on the part of the physician himself.

Billings and Hawes,²⁶ as a result of their study of over 1,000 patients discharged from the Massachusetts state sanatoriums during the two-year period from May, 1912, to May, 1914, conclude that sanatoriums are very much worth while. They believe that although early diagnosis is of prime importance, the fact that a patient is moderately advanced or advanced does not necessarily mean an unfavorable prognosis. It does not appear

that the incipient case is sufficiently impressed with the seriousness of his condition, nor that the patient discharged with the disease arrested or quiescent is made to realize how slim is his margin of safety. They believe that the words "sanatorium treatment in its broadest sense" should mean early diagnosis, length of stay of over six months, education of the patient and his family, and supervision of the patient after his discharge from an institution.

Johnson,²⁷ in discussing the treatment and after-care of the consumptive after leaving the sanatorium, calls attention to a very important point: that in dealing with consumptives, in the majority of cases we are dealing with substandard lives, whose efficiency in industry is below par. The real problem is to get the patient, after his discharge, into work where he can earn a living wage without suffering a relapse. In the after-care of the exsanatorium patient, three elements must be considered: housing and living conditions, suitable employment, medical supervision. He believes that if proper home conditions are available and treatment begun early, it makes no difference what sort of work discharged patients do under average conditions. There is much sound sense in what he says.

Thomson²⁸ discusses the value of limitation of sanatorium treatment. He believes that the value of the sanatorium for suitable cases is definitely established and cannot be replaced by other measures. It is useless to reproach sanatoriums for insufficient or unsatisfactory results when after-care is of equal, if not greater, importance.

Exercise and Work for Consumptives

Beyers,²⁹ discussing occupational treatment for the consumptive, believes that regulated work is highly beneficial, provided that the greatest care is exercised in the selection of the work and that the patient cooperates willingly. This latter factor is an important one. He states that even patients who are confined to bed seem to progress more rapidly when allowed to fill out part of the day with some interesting finger work instead of lying still and brooding over their lot. Contrary to expectation, relapses have numbered less than 2 per cent of the patients thus treated under his care. While such vocational training does not make a man a wage-earner in a new field, it has in many cases started new lines of thought regarding the life to be led after discharge, and has stimulated many patients to improve themselves and become more useful citizens.

Beyers' statements in this regard are of interest, when compared with the excellent work which is being done along this line by Colonel

Hoagland, in charge of the Army Tuberculosis Hospital in North Carolina. At this institution even the advanced bed cases are given some form of light occupational therapy, so far, at least, with good results.

McSweeney³⁰ discusses the same subject of exercise versus work for consumptives. He believes that absolute rest and idleness in tuberculosis tend toward the development of hypochondriasis and neurasthenia. He believes that in public sanatoriums the work done should be useful and economical from the institutional standpoint. As far as possible, work should be chosen in which the patient can engage after leaving the sanatorium. He states that there should be a rest stage, during which the patient should be studied and brought to normal condition, and that this rest stage seldom need exceed one month. The patient is then to be put on walking exercises of gradually increasing duration on a given course. This is continued until he can work.

Work As a Therapeutic Agent

There can be, of course, no discussion concerning the value of work as a therapeutic measure for suitable patients, but, in Massachusetts at least, it is extremely difficult to get suitable patients, and the ideal type of patient which Patterson describes, based on his experience at the Brompton Sanatorium in England, seems to be an exceedingly rare type in this country. McSweeney states that the preliminary period of rest need seldom exceed one month. If this is the average length of time which he has found necessary for his patients to rest, he is certainly to be congratulated on having a very remarkable group of patients sent to his institution.

Biggs³¹ describes the plan which has hitherto been somewhat in vogue, of having patients at a tuberculosis sanatorium do no work of any kind, but sit in the fresh air in reclining chairs by the hour, as one which will tend to "convert a self-respecting consumptive working man into a fairly healthy loafer." At the Municipal Sanatorium at Otisville, New York, each patient is expected to do some useful work, apparently with excellent results. The Board of Trustees of Hospitals for Consumptives, in charge of the four state sanatoriums of Massachusetts, with over 1,000 beds, nearly ten years ago made the regulation that "work for patients shall be regarded as a therapeutic measure and prescribed as such." The natural sequence of this work treatment is the farm colony, where the patient who is discharged from the sanatorium can go, for a period at least, before returning to his home.

Economic, Social, Administrative

Hawes³² presents certain answers to the question, "When does an individual become a case of tuberculosis from a board of health point of view, and when does he cease so to be?" from fourteen men prominent in tuberculosis work, and concludes as follows:

1. Every physician should report, and the board of health has a right to demand such a report, concerning every case of tuberculosis with bacilli recently demonstrated in the sputum.

2. In addition to this the physician should report every case in which he honestly believes the diagnosis of active pulmonary tuberculosis to be justified.

3. The board of health has a right to request, but not to demand according to law, information concerning every other case of tuberculosis in which the diagnosis is clear, even though tubercule bacilli cannot be demonstrated in the sputum, and even though there may not be marked signs of activity. The attitude of the board of health toward this last group of cases, which should be a large one, but which at present is a very small one, must be determined by the individual circumstances surrounding each case.

This question is one which confronts every health officer in the country dealing with tuberculosis. It would be of interest and value to have this matter discussed at length in various sections of the country, and obtain from such discussions a composite point of view.

Hawes³³ summarizes the factors in an idealized plan for controlling tuberculosis as follows: elimination of sources of infection, both human and bovine; education of the public, and particularly of children, in methods of right living and proper hygiene; early diagnosis of clinical tuberculous disease in adults and children; sanatorium treatment for the education and care of favorable and suitable cases; hospital treatment for the care and isolation of the advanced progressive cases; supervision of the tuberculous patient, before and after leaving an institution, and at all times if the patient does not, or cannot, have institutional care.

Hawes states that he is constantly unmaking diagnoses of consumption and trying to overcome harm done in this direction, while on the other hand too many cases of incipient pulmonary tuberculosis are still unrecognized. He believes that home treatment cannot, and should not, take the place of sanatorium treatment among the poorer classes, if the latter is in any way available.

Lyman,³⁴ discussing the control of the careless consumptive, makes a stirring plea for legislation to enforce compulsory segregation of the careless and incorrigible consumptive.

The *Bulletin of the New York State Department of Health*³⁵ calls attention to the progress that

New York is making in carrying out the statute which requires a tuberculosis hospital in every county having a population of over 35,000. The main features of the program for the State of New York are the establishment of adequate tuberculosis hospital provision for each county in the State, on the approximate basis of one bed for each annual death in such county. These county hospitals are to be inspected regularly, and it is hoped to make them the campaign centers of educational and medical work in each county. At the State sanatorium for incipient cases at Ray Brook it is planned to hold a course of instruction for superintendents and others. The county hospitals are likewise to have outpatient departments for patients, and physicians' clinics in cooperation with the health officers.

Armstrong,³⁶ describing the work of the so-called Framingham Experiment, financed to the extent of \$100,000 by the Metropolitan Life Insurance Company, defines this demonstration as a community method, successful or not, as events may prove, of disease prevention and health administration. Thus far the health experiment has apparently demonstrated the importance of sympathetic cooperation from local and outside agencies as a basis for social community control over disease-producing factors. It is hoped that further development will demonstrate that on a community basis, disease may be prevented and health created, thereby laying a permanent physical foundation for future social, economic, and spiritual evolution.

Ames³⁷ describes an interesting survey of Saranac Lake from the point of view of tuberculosis. Educational influences, emanating from nearby sanatoriums, and, locally, the "open door" for the tuberculous into unrestricted industrial and social activities, have done much to remove fear and ignorance and to create an intelligent public mind toward the disease. With this same attitude existent, the problems connected with the control of tuberculosis are becoming less and less difficult of solution.

Tuberculosis and War

Minor, Pratt, Brown, Stewart, McCrae,³⁸ and Bushnell, Elliott, Miller, Perkins,³⁹ discuss the general subject of the tuberculous soldier and tuberculosis and war. It is impossible to present the details or to review adequately these articles in a brief space. To those interested in this subject, these articles will offer valuable material. There is the same note running through them all, suggesting that the medical officers of all our armies were to a certain extent stampeded by tuberculosis, especially in the first year of the war.

According to the Illinois plan⁴⁰ for caring for the tuberculous soldier, an agreement has been reached between the State Department of Health, the State Tuberculosis Association, and the American Red Cross, under which the Red Cross will provide care for returned tuberculous soldiers in the interval between their return to their home communities and the time that more permanent provision is made for them, and will also provide one-third of the expense for their permanent care. An expert examination will be made by a physician representing the Illinois Tuberculosis Association. The remaining two-thirds of the cost of permanent care are to be provided for by local organizations and individuals through the State Tuberculosis Association.

The plan adopted in the State of Massachusetts is very similar to this. The Trustees of Hospitals for Consumptives, who are in charge of the four state sanatoriums providing one thousand beds, have an agreement with the local branch of the Red Cross to provide immediate treatment for any tuberculous soldier discharged from the army for this cause. The Red Cross in its turn guarantees to pay the expenses until a permanent arrangement can be made. So far this plan has worked out well. Soldiers who are still under the supervision of the Bureau of War Risk Insurance are likewise sent to state or local institutions and their expenses paid by funds from the Bureau War Risk Insurance.

Minor⁴¹ apparently believes that there is to be a great increase in the incidence and mortality of tuberculosis after the war. He urges wise legislation and philanthropy to combat this problem. So far, at least, we have no reason to apprehend any such increase in the incidence of tuberculosis.

Gafflikin,⁴² from his experience, believes army life is not a thing conducive to the cure of tuberculosis, but that it tends to bring about such infections, or at least to arouse them into activity. This he accounts for by the absence of rest. He believes that with a definite history of tuberculosis, even with no physical signs, the applicant should be rejected.

Tedeschi⁴³ calls attention to the similarity between certain cases of gassing and tuberculosis. It is important that this distinction should be made, as it undoubtedly accounts for many soldiers being classed unnecessarily as consumptives.

Comment is made⁴⁴ upon the great exaggeration in the amount of tuberculosis among soldiers, as based on a preliminary report. Colonel George E. Bushnell and others in a position to judge in this matter are right in protest-

ing against the unnecessary alarm regarding the prevalence of tuberculosis among soldiers in France and elsewhere.

Miscellaneous

Rathbun⁴⁵ discusses the incidence of tuberculosis among our immigrant population, and appeals for a reorganized and increased medical staff with equipment at each of the various immigration stations for a satisfactory minimum physical examination of each immigrant, and a sufficient number of tuberculosis specialists and trained roentgenologists to carry forward proper examinations for tuberculosis. He likewise urges an educational campaign to inform immigrant associations, steamship companies, and other institutions of advantages to be derived from the exclusion of tuberculosis aliens.

Duboff⁴⁶ concludes from his investigations that throat complications are no more frequent in tobacco users than in those who use no tobacco, and that tobacco does not predispose to laryngeal complications.

Webb⁴⁷ concludes likewise that the inhalation of the smoke of cigarettes does not aid in the outbreak of pulmonary tuberculosis.

Attention has been called to the distressing amount of tuberculosis among mine workers, marble polishers, and the like.⁴⁸ Unless there is a concerted move by employees and the community to control the conditions causing the disease, many more individuals must become affected as these industries continue to develop. He urges that the disease be made reportable and that legislation be introduced to control this evil.

Pierson⁴⁹ believes that a localized focus of tuberculosis, in itself insignificant, can be the cause of and may actually set up a localized or general asthma. This would account for many puzzling cases in which, in spite of a positive sputum, the distressing symptoms are due far more to the asthma than to the tuberculosis.

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A CHILD FEEDING SURVEY

By Solomon Strauss, M.D., Chicago, Illinois

In the city of Chicago, excepting the public school medical service, there is no public agency concerning itself with the health, welfare and education of the little folks. The Infant Welfare Society of Chicago has for some years past undertaken "to keep babies well by advice, by supervision, by encouraging breast feeding, and by instruction of the mothers in the rules of hygiene"; by babies has been meant infants up to two years of age. At that age the Infant Welfare Society graduates them, not because the organization feels that the child is "finished so far as they are concerned," but because the number of welfare stations is not sufficient to take care of both infants and the older children and it was considered more important to care for the infants. This means that there has been no organization especially interested in the child from two to six, and as a result this child has come to the adult table and partaken of adult food regardless of his needs. How such a diet affects the child, especially in the congested districts of the city, records of children's dispensaries and of pediatricians best show. At the age of six the average child comes under the jurisdiction of the public school.

The Infant Welfare Society, feeling the injustice of turning away from its clinics children over two years old, undertook a food survey of the conditions and needs of the child between the ages of two and six. For a period of ten weeks clinics for children of this age were held at one of the Infant Welfare stations in a congested district. These clinics were planned and managed by an expert dietitian assisted by four student-teachers. A doctor and nurse were in attendance at each clinic. The neighborhood in which the experiment was carried out was chosen for two reasons: first, its general heterogeneous character; second, its high percentage of Jewish mothers, who, it had been reported, might prove more easily teachable because of their peculiarly close home ties.

The experiment was aimed to teach not only the family proper food values, but to give the student an actual opportunity to practise in the home the dietary rules of right living. It was attempted to educate the parent along the

lines of health through the paths of correct living and correct feeding. The student-teacher was enabled to apply her science practically to a most intense human problem and was given the privilege of studying and correcting at first hand home economics, often practised under anything but ideal conditions. If the cooperation of the mother was gained, the interest of the child held, then the survey would be a success.

The method of work in brief was as follows: Each student-teacher, under the personal direction of the instructor in dietetics, was placed in charge of one or more families for whom she was held responsible. The mothers with their two to six-year-old children came to the clinics once a week for individual and group instruction. At the first visit the children were weighed and measured and given a thorough physical examination by the physician and attendants. Cards giving the results of these examinations were carefully kept and studied by the physician and the dietary expert. The majority of the cases showed evidence of malnutrition, so that the work of the dietitian followed immediately that of the physician. The dietitian talked with the mothers individually and in small groups and also interested the mothers through the children.

A group of families to be visited in the homes was selected. Each student-teacher was placed in charge of a family. Her report was based on observations made at first hand in the home. Armed with her food-weighing scales, each student-teacher visited her family, spending the entire day in the home, carefully checked up all the food consumed by the children from two to six. After weighing or measuring food the exact scientific data were then obtained by calculation of the various food ingredients consumed as well as the caloric value of the food. Fifteen families in all were thus visited. Ignorance of food values alone was the prevailing condition responsible for poor nutrition in practically all cases, regardless of the extent or degree of poverty. In no case was shiftlessness found as a cause of poor feeding. In one instance the mother so wisely and well expended her very limited weekly food allowance that with the exception of additional milk, not the slightest suggestion could be made by the visitors. In addition to the calculations of food values made from study in the homes of the poor, at least two controls were carried out in families supposedly well able to handle the feeding of their children in a perfect manner. After the visits at the home, the parents received their subsequent instruction in proper feeding at the clinic.

Many devices were employed to attract and hold the interest of the child and the parent in properly cooperating in the experiment. Cards were kept on which were lists of foods to be avoided and foods to be used. When the child at clinic was able to report the proper amount of vegetable or cereal eaten, a little Brownie poster was inserted in the blank space in the child's card.

Since the survey is only now being completed, only a few results can be suggested.

First, tea and coffee drinking habits were most easily broken and, regardless of nationality, cooperation in this respect was immediately secured.

Second, whenever economically possible, a general willingness to add milk to the children's diet was found.

Third, great difficulty was experienced in obtaining the cooperation of the parents in urging children to take sufficient quantities and varieties of vegetables.

Fourth, equal difficulty was experienced in convincing the children of the necessity of going to bed early.

On the whole, the general attendance and the marked interest of both parents and children were satisfactory.

INFECTIOUS DISEASES OF CHILD IMMIGRANTS

In the steerage of vessels bearing immigrants to America disease often finds a breeding ground. Many have been the aliens sailing westward across the Atlantic who were borne ashore on a stretcher to the immigrant station at Ellis Island.

"It is impossible to imagine any more unfavorable conditions for recovery from measles," says a new government bulletin on "Infectious Diseases of Children," "than to be taken sick in the steerage in transit to the United States, and then, either in the height of the disease or before convalescence is well established, to be transported in overcrowded barges from the New York City docks to the immigrant station at Ellis Island."

"Besides the unfavorable sanitary conditions necessarily surrounding this procedure, the patient has almost invariably been exposed to the risk of cross infection before he reaches the hospital."

A study of 6,078 cases of infectious diseases among immigrant children is contained in *Public Health Bulletin* No. 95. Special reference is given to cross infection and hospital management.

During the years 1912 to 1916, inclusive, the records show that 6,078 children were admitted to the contagious disease hospital. These are considered in three groups. In the first group are those taken direct to the hospital on primary inspection, numbering 3,661. The second group includes the cases arising in the detention room where immigrants are held if the immigration authorities recommend investigation. The detention room, where overcrowding is a problem, sent 1,292 cases to the hospital. The third group consists of those who were taken to the general hospital for other diseases and while there exhibited symptoms of infectious disease. In this group were 917 cases.

The report eliminates 1,832 of the 6,078 cases, leaving only those patients admitted to the infectious disease hospital solely on account of contagious disease, exposure to contagion, or suspected exposure. The study deals with the fatality among patients so admitted, and their management in the hospital.

Measles was the most frequent in occurrence, there being 2,614 admissions. Scarlet fever admissions numbered 530 cases, chicken-pox 79; whooping cough 73; and diphtheria 70.

"From a study of 2,614 cases of measles occurring over a period of five years, together with a survey of literature," says the author of the bulletin, J. G. Wilson, "it seems that although both the incidence and case fatality of this disease are greatly influenced by age, there are other more important factors not yet understood which determine both the virulence and periodicity of epidemics."

From a study of the cases as they occurred at Ellis Island the following conclusions were drawn:

- Cross infection, especially that of diphtheria, was the most serious event that occurred in the course of measles.

- Broncho-pneumonia complicated 10 per cent of all the cases, being but little influenced by weather conditions in the frequency of its occurrence or its case fatality.

- The case fatality of measles complicated with broncho-pneumonia was 50 per cent, but it varied in an erratic manner and without marked relation to the total case fatality of measles.

- The incidence rate of broncho-pneumonia as a complication rather than its case fatality appeared to be an index to the severity of any particular outbreak.

- Proper isolation facilities greatly reduced the incidence of cross infections and complications and had a directly favorable influence upon prognosis.

- Suppurative otitis media, although the most frequent complication of measles, was not of grave prognostic import.

Broncho-pneumonia was the principal complication of over 60 per cent of the fatal cases of measles. The significance of this high percentage is not so much an indication that this class of complication should be regarded as necessarily fatal, it is stated, but rather, that it should be regarded as having been a determining factor in the severity of measles epidemics. The incidence of bronchopneumonia rather than the deaths thus complicated appears to have been the more important fact, since the percentage of fatality was subject to extreme fluctuations. The fatality from this complication averaged 50 per cent.

A concise summary of the principal groups of cases in which cross infection occurred is furnished. The bulletin contains the following comparative data:

The exact significance of the chief complications in fatal cases can be best appreciated when considered in relation to their frequency in non-fatal cases. Thus, from among 2,614 measles admissions for the five years, the following data are derived:

Broncho-pneumonia occurred 278 times with 141 deaths, giving a case fatality of 50 per cent.

Diphtheria occurred 44 times with 23 deaths, giving a case fatality of 52 per cent.

Scarlet fever occurred 53 times with 18 deaths, giving a case fatality of 34 per cent.

Whooping cough occurred 42 times with 6 deaths, giving a case fatality of 14 per cent.

Gastrointestinal complications occurred 92 times with 22 deaths, giving a case fatality of 24 per cent.

Suppurative otitis media occurred 481 times with 10 deaths, giving a case fatality of 2 per cent.

Nephritis occurred 18 times with 1 death, giving a case fatality of 5 per cent.

Inflammation of lymphatic glands occurred 17 times with 1 death, giving a case fatality of 6 per cent.

Bronchitis (not including the symptomatic bronchitis of measles) occurred 15 times with 1 death, giving a case fatality of 7 per cent.

Meningitis occurred 2 times with 2 deaths, giving a case fatality of 100 per cent.

Uncomplicated cases occurred 1,700 times with 5 deaths, giving a case fatality of 0.3 per cent.

Unlike measles the uncomplicated cases of scarlet fever formed the largest single group of deaths among the 530 admissions for scarlet fever. The most important complications in this class, with the resulting case fatality, are stated as follows:

Broncho-pneumonia occurred 27 times with 11 deaths, giving a case fatality of 40 per cent.

Measles occurred 42 times with 11 deaths, giving a case fatality of 26 per cent.

Diphtheria occurred 21 times with 9 deaths, giving a case fatality of 43 per cent.

Nephritis occurred 38 times with 2 deaths, giving a case fatality of 5 per cent.

Suppurative otitis media occurred 100 times with 1 death giving a case fatality of 1 per cent.

Parotid abscess occurred 2 times with no deaths.

There were 7 single and 1 double mastoid operations with no deaths.

"From the foregoing," writes Mr. Wilson, "it is evident that the chief danger was connected, first, with the virulence of the infection, which either suddenly overwhelmed the patient by its first onslaught; or, failing in this, so weakened him that a terminal bronchopneumonia proved a fatal ally; or, second, with the incidence of a cross-infection."

The somewhat startling suggestion is set forth that the immigrant population that clears through Ellis Island, coming as it does from all quarters of the world, forms a complex group that is continuously susceptible to measles rather than exhibiting periodicity in the prevalence of the disease, as seems to be true of fixed groups in communities where the transient element exists at a minimum.

The writer reviews the literature bearing on the recurrence of measles epidemics and cites the hypothesis of Crum and Müller that measles outbreaks in a given community either actually attacks or immunizes the whole susceptible population and that the off years following the epidemic simply represent the time required for a new susceptible generation to come into existence. He then seeks the application of the hypothesis to the study of measles cases at Ellis Island.

It is shown that the proportion of children to the total number of immigrants has borne an inconstant relation to the yearly variations in measles morbidity, thus indicating that the ratio of measles cases has a more direct relation to the whole body of immigrants than to some one section of them. The author then states his conclusions, as follows:

"A study of all the available data," he says, "simply establishes the fact that measles epidemics show a periodicity of recurrence, and that this periodicity seems to vary in different places. The underlying reason of this phenomenon has not yet been solved.

"There is only one factor which appears to bear a constant causal relation to epidemics of measles, and even this is incapable of explaining it in its entirety. This factor is overcrowding. Williams' showed very clearly how this influenced the situation at Ellis Island in the detention rooms, and the same problem was worked out by the health authorities in Glasgow, where both the incidence and the fatality of the disease were shown to bear a direct relation to the number of rooms occupied by the family.

"There can be no doubt that more success has heretofore actually attended home than hospital treatment, but it can be shown that when hospital conditions are changed so that isolation facilities are adequate, just as great success will attend this method of treatment. There have not yet been constructed any hospitals with absolutely adequate isolation facilities. By such hospitals are meant those in which it is never necessary to take any chances of patients directly infecting one another.

"This means that every child must be kept in isolation for a length of time that not only absolves it as a source of danger on account of the disease for which it has been treated, but also covers the incubation period of every contagious disease which it has not had.

"At Ellis Island Hospital there has been an effort to achieve this ideal, but so far it has not been reached. There has, however, been great improvement. A comparison of the years when isolation facilities have been decidedly inadequate with those when they have been considerably better, shews so marked an improvement in the results that one cannot help believing that it will eventually be entirely possible to eliminate every objection that may be raised to hospital treatment."

A brief resume of the data pertaining to scarlet fever, diphtheria, and whooping cough admissions will be found in the bulletin, as given below:

Scarlet Fever

The incidence of scarlet fever was greatest during the winter months.

The liability to the disease was greatest between the ages of 2 and 8 years.

The case fatality was highest in the second year of life.

After seven years of age the case fatality was practically the same for all ages.

Complications, though rendering convalescence slow, were not the usual cause of death.

The case fatality was determined chiefly by the virulence of the epidemic and the incidence of cross infection.

Diphtheria occurring in the course of scarlet fever more than doubled the liability to death.

The virulence of the infection varied greatly in different epidemics and to a less extent during the same epidemic.

The inference seems warranted that the majority of adults enjoy immunity to scarlet fever on account of a previous attack, whether recognized as such or not.

Diphtheria

Diphtheria was slightly more prevalent during the fall and winter than at other seasons of the year.

The case fatality was two to three times greater during the colder months.

The case fatality was highest during the first three years of life.

After eight years of age all cases recovered.

The high case fatality (25.7 per cent) was due chiefly to two factors—first, admissions late in the course of the disease, and, second, the tender age of the majority of the patients, nearly 70 per cent being less than eight years old.

The case fatality of diphtheria, when it occurred as a cross infection, was twice as high as when it occurred alone.

Diphtheria carriers were very prevalent in the Ellis Island population.

The diphtheria bacillus, once introduced into a general ward, spread rapidly from person to person, infecting three-fourths of all exposed in a period varying from twenty-four hours to six days.

About one-fourth of the persons exposed fail to become carriers, even after an intimate association of two weeks with those who have harbored the bacillus.

The majority of those whose throat or nasal mucus membranes afforded a suitable nidus for the growth of the diphtheria germ gave a positive culture after less than three days exposure to infection.

No cases with negative Schick test developed diphtheria.

Whooping Cough

The mortality from whooping cough was subject to marked variations.

The variable mortality depended chiefly upon, first, the incidence of cross infection as a complicating factor, and second, upon the age of the patient.

Deaths from whooping cough were all caused by some complication. Uncomplicated cases never proved fatal.

Specific vaccine treatment apparently had both prophylactic and curative value.

ILL EFFECTS FROM WEARING ARMY LEGGINGS

Assertions that the leggings and puttees worn by the men and officers of the United States army not infrequently cause discomfort for the wearer, and, in some instances, disability, have prompted a discussion of the question in the *Military Surgeon*.

Lieutenant Colonel James T. Rugh, M.C., who in one year examined the feet and legs of 30,000 officers and soldiers, who is the author of the article, points out that the clothing, either underwear, hosiery, or breeches and not the puttee or leggings may be the cause of trouble in many cases. Improperly adjusted lacings in the breeches, knots in lacing, tight garters, socks that turn over at the upper end, and tight breeches are often the factors that cause the discomfiture. If neglected, a serious constriction sometimes ensues.

Puttees which do not fit properly either cause soreness over the heel tendon where the lower edge rubs the shoe, or at the top in front. Unless the canvas legging is laced so tightly as to cause compression, it is not often a cause of trouble, except if the three layers of clothing beneath—the breeches, underwear, and sock—be improperly adjusted or wrinkled so as to produce constriction.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

INDUSTRY AND HUMANITY.* A study in Principles Underlying Industrial Reconstruction, with a chapter on "The Principles Underlying Health." By W. L. Mackenzie King, C.M.G., M.A., LLB., Fellow of the Royal Society of Canada, and formerly Minister of Labor of Canada.

A masterful mind has taken hold of the trouble-breeding world problems that manifest themselves in labor disputes, strikes, lock-outs, political misrule, injustice, poverty, sickness, and suffering, which have been resolved into their primary elements and analyzed as social forces by the process of clear thinking and reasoning. This has all been done before the book was written. The book is the finished work, a creditable volume presenting a broad doctrine of ethics and justice in industry.

The thesis of the book is stated as the Law of Peace, Work, and Health—an expression used by Pasteur, in 1888. At the outset this law requires a social environment that will in no way, either through accident, preventable disease, sickness, or injustice mitigate against the health, happiness, and well-being of the individual.

The author demands recognition by the men in control of affairs everywhere, both on the side of Capital and on the side of Labor, of the human aspect of industrial operations.

Says the author: "A new era in the progress of Industry and Nationality will begin, when, in all that begets strife and hatred in human relations, men come to see disorder and ferment akin to that evidenced by disease."

Antagonisms must be put aside for the larger considerations of human, individual, and collective benefit. The losses of life in industry from preventable causes, the preventable casualties of the shops and factory, the enemy diseases of an occupational sort, all of which exact a toll no less appalling than the more apparent loss of life in war, must be stopped. Human lives that are shattered by excessive nervous exhaustion, waste of energy, and occupational hazard must no longer be matters of individual concern. The whole problem, although it lies outside the borders of the science of economics, demands attention for purely economic reasons, besides the human aspect.

The studies around which the book is written were conducted at the invitation of the Rockefeller Foundation.

WORLD-POWER AND EVOLUTION.† By Ellsworth Huntington, Ph.D., Research Associate in Geography, Yale University. Author of "Civilization and Climate," etc. May be briefly described as the influence of climate upon human affairs. Includes an account of recent experiments in the production of a new species, and a new theory of same.

Professor Huntington's new book gives substance to a principle which the absence of facts and exact data have obscured in the past. The author demonstrates by sci-

entific methods that climatic conditions react upon health in a definite and measurable degree.

The book portrays the results of a study of 60,000,000 deaths of people in America, Europe, and Asia. Localities having closely similar weather conditions, with temperature and humidity the same have been grouped together for comparison with other groups in which differing climatic conditions exist. The death rate is regarded as a measure of the health of each group. Within each group a further comparison is made of the relation between the death rate from day to day and the changes occurring in the weather.

That climatic conditions, through their effect upon health, are largely responsible for differences of mental attitude both from place to place and from time to time, and with reference to evolutionary processes, is the thesis of this book. Business fluctuations are shown to correspond closely to fluctuations in the health of the people. Periods of financial depression and panic come closely upon the advent of abnormally high death rates, with the attending amount of sickness, while prosperous seasons go together with periods of improved health.

That climatic conditions largely determined the processes of evolution, the millennium of prehistoric time; that the production of new species, the development of human kind, and the progressive increase of mental power in man came about only after climatic changes had precipitated favorable conditions and environment, are propositions which the author advances. He presents a new theory of the changes that lead to the production of new species.

The book represents a great amount of original research and tedious clerical labor. The manner of presentation makes the work exceedingly interesting.

THE DOCTOR IN WAR.‡ By Woods Hutchinson, M.D. Cloth, 800, pp. 481, 29 illustrations.

Dr. Hutchinson's new book typifies the pride and love of the physician and surgeon for the profession that has done so much to rid warfare of its suffering and plagues. It is a book both entertaining and instructive, and yields its best when read in one's hours of leisure.

Witnessing the merciful, masterful labors of many hundreds of army surgeons, physicians, and nurses, who achieved unequalled triumphs in curative and preventive medicine and surgery in the hospitals of the British, French, Belgian, Italian, and American armies, has called forth the best descriptive ability of a versatile writer.

No attempt is made to present data of technical facts. Rather, the treatment of the subject expressed by the title is a descriptive and illuminative interpretation of the

(Continued on Adv. Page 22)

* Houghton Mifflin Co., Boston and New York, 1918, \$3.00.

† Yale University Press, New Haven, 1918, \$2.50.

‡ Houghton Mifflin Co., Boston, 1918, \$2.50.

Lessons in Sanitation Taught Us by the War

The recent war wrought radical improvements in American living methods. For one thing, it brought home to us, during the days when we were organizing and supporting a large army, the necessity for greater physical efficiency; for good habits, discipline, and, most important of all, cleanliness as an aid to good health.

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BOOKS OF THE MONTH

(Continued from Page 184)

significant achievements of the army medical service. What it means to reduce an army's death rate from disease to a fraction of the death rate from battle casualties; what it means to the living generation to completely eliminate the typhoid plague from armies composed of millions of men; what it means to triumph over the infections of wounds that in other wars have proved so deadly; what it means to the world to establish huge army camps under sanitary supervision such that none of the cities of the world is as clean; what the import of these triumphs of medical science will be in the life of nations in the future, the author has suggested by a vivid portrayal of the army medical service in action.

The book will afford pleasure and satisfaction to the physician or surgeon who participated in the war. It will afford instruction and entertainment either to the professional man or layman.

HEALTH FIRST.* The Fine Art of Living. By Henry Dwight Chapin, M.D., professor of medicine, pediatric department, at the Post-Graduate Medical School and Hospital, New York City.

"Health First" is a book written by a physician who believes that in the coming decade the medical profession will be called upon more and more to devote themselves to social-industrial groups in their communities.

The author advises employers to interest themselves in the health and working conditions of their employees. He contends that the advantage to the worker in better protection against sickness and disease is likewise to the advantage of the employer, who profits by the increased efficiency of his workmen. A proper estimate of the value of good health, he believes, is fundamentally important to the individual, and should have the moral reinforcement of the employer's interest in the individual's health.

The book is not addressed exclusively to the employer, however. It contains practical counsel in matters of health for old and young. From the cradle to old age it portrays step by step the every-day physiological health precautions and the dangers to health. In no place is the author technical in his manner of expression.

"Health First" is a volume which social groups, lodges, fraternal organizations, and employers might profitably distribute among the personnel of their organizations. They could expect in return an increased vigor, longevity, and greater productivity, because this book has in its pages that which will cause many to aspire for health in greater abundance. The chapters relate to intimate topics of personal habit.

PATHOLOGICAL TECHNIQUE.† A practical manual for workers in pathological histology and bacteriology, including directions for the performance of autopsies and for clinical diagnosis by laboratory methods. By F. B. Mallory, M.D., associate professor of pathology, Harvard Medical School; and J. B. Wright, M.D., pathologist to the Massachusetts General Hospital. Seventh edition, revised and enlarged.

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(Continued on Page 23)

* The Century Co., New York, 1918, \$1.50.

† W. B. Saunders Co., Philadelphia, 1919, \$3.75.

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BOOKS OF THE MONTH

(Continued From Page 22)

cially in the preparation of stains and the methods of staining tissues, render it invaluable as a book of reference in the pathological laboratory. The seventh edition, like those which have gone before, deals in great detail with bacteriological methods, the preparation of culture media, and contains a very usable description of pathogenic bacteria and fungi with their cultivation and differential diagnosis. There is a short section on animal parasites, the clinical pathology of blood and serous fluids, including the Wassermann reaction, and, finally, an excellent description is given of the technique to be used in postmortem examinations. The additions to the sixth edition of 1915 include the classification of pneumococci according to the Rockefeller methods, a few media for the differential diagnosis of bacteria of the colon typhoid group, the Fontana method for staining the *Theponema pallidum* in smears, and the newer methods of differentiating types of leukemia by the oxydase reaction. These additions bring the book fully up to date and make it more than ever one which even the smallest laboratory should have.

RADIO-DIAGNOSIS OF PLEURO-PULMONARY AFFECTIONS.* By F. Barjon: Translated by James A. Honeij, M.D., assistant professor of medicine in charge of radiography, Yale Medical School, New Haven, Conn.

Dr. Honeij is to be congratulated upon his excellent translation of Barjon's work on the x-ray, and the medical profession in this country, at least that part of it which deals with diseases of the lungs, is likewise similarly to be congratulated upon having such excellent work at its disposal. Not only is the print clear and legible, the book itself of a convenient size and weight, and the photographs of the highest order of excellence, but there is also running through it a vein of conservatism and modesty which is exceedingly rare in the majority of x-ray treatises. It would appear, to the reviewer at least, that many x-ray enthusiasts would do away or endeavor to do away with the clinician or clinical methods.

The tone of this book is, however, quite different as shown by the following on page 117:

It is not to be assumed that the radiological diagnosis of tuberculosis is to displace clinical examination and auscultation. Radiological examination may often be useful, but may often give no indication. It is not infallible. Certain light, disseminated lesions, insufficient to change the density or the elasticity of the parenchyma, may perfectly well pass unnoticed. The radiologist, when not taking into account clinical methods of examination, may very well declare a case of incipient tuberculosis with apparent signs of auscultation to be non-tuberculous. But the same is true of the physician who has relied wholly on clinical methods.

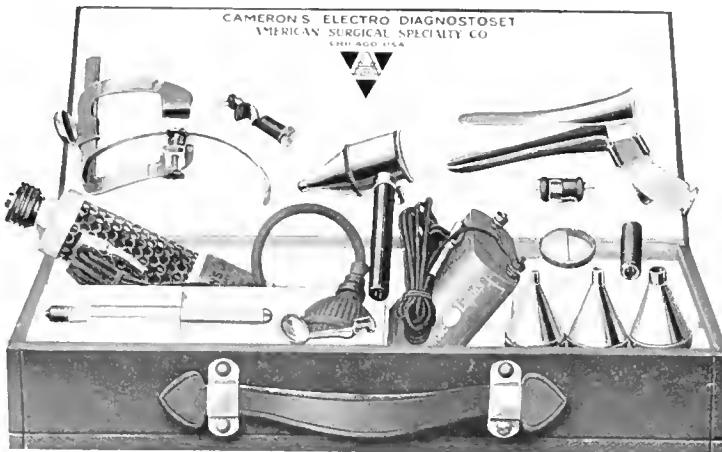
That the author is a firm believer in the value of the x-ray, however, is shown in many ways, for instance:

The time is coming when the information furnished by radiological examination will be as indispensable as that obtained by means of the stethoscope. * * * * * (Page xvii): At once the superiority of this method supersedes all others, for palpation and auscultation give information only as to the condition of those organs which are close to the thoracic wall; auscultation reveals only lesions superficial enough to transmit to the ear perceptible sounds, while the eye can observe lesions that are concealed in the deeper tissues.

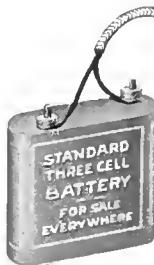
In the initial chapter, methods of examination of the normal chest are considered. He then takes up the subjects of pleurisy and circumscribed and encysted pleurisy.

(Continued on Adv. Page 26)

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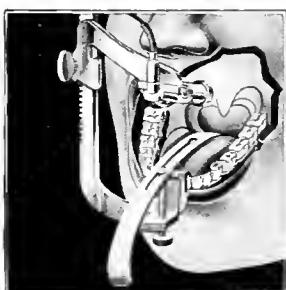
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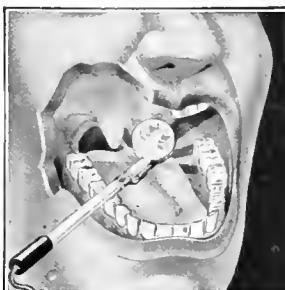
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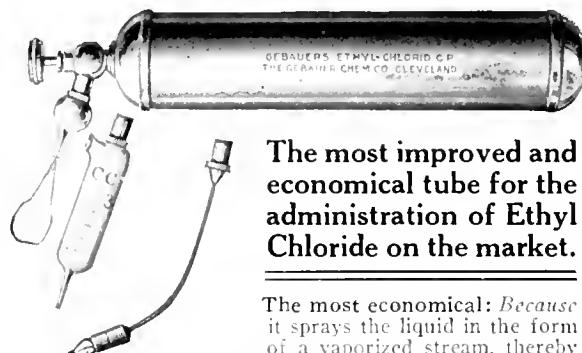
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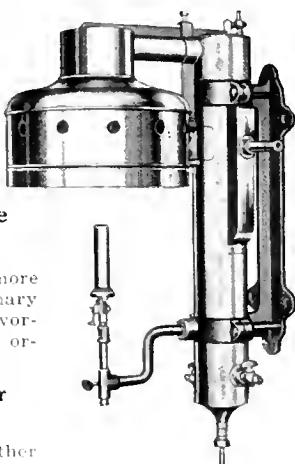
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BOOKS OF THE MONTH

(Continued From Page 24)

He frankly admits that in many pleuritic processes radioscopy is of comparatively little value. As an adjunct to the use of artificial pneumothorax, however, x-ray examination both before and during treatment is indispensable. He urges that radiologists learn to discuss the interpretation of abnormal shadows of the hilus region, which might almost be called the area of romance in the chest.

In his chapter on the enlargement of the tracheobronchial gland, he admits that in adults such enlargement is often due to perfectly innocent infection. In children, however, he believes that tuberculosis is the most common cause. His chapter on the acute infectious pulmonary processes, particularly abscesses and gangrene, is of great value. In tuberculosis of the lungs, he believes that not only is an x-ray examination of value in diagnosis, but that it is also important in following the progress of the individual patient. He admits, however, that in incipient tuberculosis, clinical examination, history, and auscultation signs and symptoms are of more importance than the x-ray.

On the whole, this book is an excellent one and a valuable contribution to our literature in this subject.

EQUILIBRIUM AND VERTIGO.* By Isaac H. Jones, M.A., M.D., laryngologist, Philadelphia General Hospital, etc. With an analysis of pathologic cases, by Lewis Fisher, M.D., laryngologist and otologist, Mt. Sinai Hospital, Philadelphia, Pa.

Medical officers returning from military duty with the Aviation Section of the Army are thoroughly acquainted with this work, which has been adopted as the standard by the Surgeon General's office for the examination of flying men. Its value in this field, its inestimable value in the saving of human life and government material, has impressed all otologists on duty with Aviation Boards.

The book, which is the product of years of work by Jones and his colleagues, is primarily a general non-military work, with a wide scope of interest to the general practitioner, surgeon, ophthalmologist, neurologist, syphilographer, and, of course, the otologist.

Part I discusses in separate chapters the relation of the internal ear to these branches of medicine, and gives in each a practical working basis for the study of the kinetic-static sense with the new turning, past-pointing, and falling tests, together with their value as diagnostic aids in the field of medicine.

Part II takes up the study of the internal ear from the neuro-otological standpoint; and, by clearly arranged text, gives a clear and concise exposition of those facts regarding nystagmus and the labyrinth which in hitherto published works have served to puzzle the majority of readers.

The closing chapters deal with practical and pathological considerations of the study, with hypothetical cases, and finally an analysis of a number of pathological cases.

The book is splendidly put together and is replete with instructive illustrations and diagrams.

NÉVROSES ET PSYCHOSES DE GUERRE CHEZ LES AUSTRO-ALLEMANDS.† Par Georges Dumas et Henri Aimé, Médecins-Majors aux Armées.

This book was written during the war for the purpose of giving to French medical readers a digest of German and Austrian articles dealing with the neuroses and psy-

(Continued on Page 28)

*J. B. Lippincott Co., Philadelphia, Pa., \$5.00.

†Paris Librairie Félix Alcan, 108, Boulevard Saint-Germain, 1918.

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BOOKS OF THE MONTH

(Continued From Page 26)

chooses of war. It is essentially an abstract of three critical reviews by K. Birnbaum, of Berlin, which appeared in the *Zeitschrift für die Gesamte Neurologie und Psychiatrie* in 1915 and 1916, based upon 360 separate articles. The authors take Birnbaum to task for not giving separate attention among the psychoses of war to mental confusion previously recognized in Germany under the names of *Amentia* and *Verwirrtheit*, but Birnbaum refuses to separate it from hysteria. Although the original German articles soon will become available in this country, those who read French will prefer this excellent résumé, which has the added feature of being interspersed with the comments of the French authors, who naturally take delight in calling attention to the views of the war neuroses which have crystallized in their own country, the superior clarity of which they are certain will appeal to the unbiased reader.

NOTICES OF BOOKS RECEIVED

[*Notices of Books Received* will be found on advertising pages 36 and 38.]

IN THE HEALTH BULLETINS

Illinois Health News, in the March booklet, prints several papers on the subject of the proposed housing code in Illinois.

The January-February *Bulletin of the State Health Department of Minnesota* is devoted to the subject of rural methods of waste disposal.

The *Bulletin of the Milwaukee Department of Health* for February contains brief, crisp articles on the leading subjects of disease prevention.

A list of the literature distributed by the Minnesota Public Health Association is contained in the *Minnesota Health Journal*, April 10, 1919.

The text of the Local Health Reorganization Bill for the state of Ohio and other legislation pending and passed in the Ohio Legislature, may be found in the February issue of the *Ohio Public Health Journal*.

Florida Health Notes, the official bulletin of the State Board of Health of Florida, publishes in the February number the Report of the American Public Health Association on the subject of influenza.

Public Health, the monthly journal of the Michigan State Board of Health, is entirely devoted in the March issue to the subject of nursing; an excellent collection of articles covering fifty pages is given.

S. Dana Hubbard, M.D., superintendent of industrial hygiene, New York City, is the author of a discussion on "Occupational Affections of the Skin," appearing in the *Monthly Bulletin* of the Department of Health of the City of New York, February number.

The February issue of the *Public Health News* of the Department of Health of the State of New Jersey, contains an article on "Some Observations on the Recent Epidemic of Influenza" by Martin G. Synnott, of Montclair, N. J., and discusses the relation of the state to child welfare work.

Public Health Reports, of May 16, 1919, contains a paper by Sir Arthur Newsholme, K.C.B., chief medical advisor of the Local Government Board of England, on the subject, "Work of Red Cross Organizations in Relation to the Preventive Medicine of the Future." The paper was read at a meeting of the American Red Cross at Washington, D. C., May 2nd.

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DEFINES SCOPE OF INDUSTRIAL PHYSIOLOGY

The placing of industry on a scientific foundation so that the causes of accidents and sickness and dangers to the health of workers will be removed, will be accomplished in large part by the study and application of the science of industrial physiology, so termed by Frederick C. Lee, professor of physiology in Columbia University, consulting physiologist to the United States Public Health Service, and chairman of the Committee on Fatigue in Industrial Pursuits of the National Research Council, according to an article by Professor Lee. He has written an excellent, concise review of "some of the topics that have been or are being investigated, and some of the results." The paper appears in *Public Health Reports*, April 11, 1919, under the title, "The New Science of Industrial Physiology." Following are a few paragraphs selected from the review:

"Certain physiological and psychological tests have been employed with workers, and it appears practicable to employ some of these tests in selecting workers and assigning them to their jobs.

"The output of the successive hours of the working day in different types of operations has been measured, and the daily curves of the output have been plotted. These vary with the kind of operation, but are alike in showing a reduced efficiency, indicating a growing fatigue, as the day proceeds.

"Reduction in the length of the working day is characterized by an increase in the output of the successive hours and usually by a total increase in that of the day. The optimum duration of work probably varies with the character of the work itself.

"The introduction of resting periods in the working spell is accompanied, especially where the working day is long, by a total increase in the day's production. A five-hour working spell, unbroken by resting periods, is probably always too long.

"Overtime following a day of labor is inadvisable, as is also Sunday work following a week's labor. These tend to impair the working power of the worker.

"A hot day tends to impair strength and reduce output. Every effort should be made to keep the body of the worker cool.

"Night work is, in general, less efficient than day work. Its total output is less, and this, with a long working night, falls off enormously in the early morning hours. Alternation of periods of night work with periods of day work is more profitable than continuous night work.

"Women are capable of performing a much greater variety of industrial operations than has heretofore been recognized. They should not be employed for night work. Statistics show that they are absent from their work much more frequently than men. The problem of women as compared with men in industry is not that of their greater or less general efficiency, but rather a problem of what types of work each sex is best suited for.

"Accidents to workers are a grave source of inefficiency. They are caused by fatigue, inexperience, speed of working, insufficient lighting, high temperature, and other factors. Many industrial accidents are preventable, and adequate provisions for first-aid measures tend to diminish the seriousness of accidents.

"Food and efficiency are directly connected with one another, and suitable and adequate food can probably be best provided through the establishment of industrial canteens.

"A high labor turnover is incompatible with the highest degree of efficiency. It is expensive, in that it imposes upon the employer the necessity of training new workers, and it is a serious factor in the causation of accidents.

"Physiological analyses of certain operations have been made, by means of the cinematograph and other methods, and it has been found possible to eliminate unnecessary motions and to train workers so as to secure a more regular rhythm, such measures increasing efficiency."



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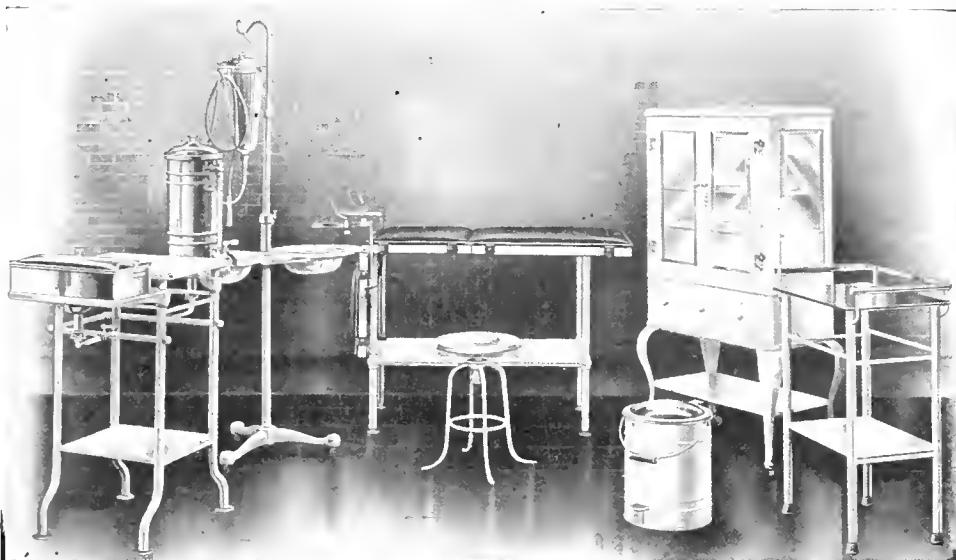
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Fix Date of Tuberculosis Meeting

The dates for the Mississippi Valley Tuberculosis Conference, which will meet in Des Moines, Ia., have been set for September 23, 24 and 25. The officers for the Conference this year are Sherman C. Kingsley, of Cleveland, Ohio, president, and Ralph Reed, of Des Moines, secretary.

England O. K.'s Fatigue Research Board

The studies of working conditions in the industrial establishments of England respecting the hours of labor, methods of work, health of workers, and relative production of fatigue, begun by the Health of Munitions Workers Committee in 1917 and 1918, will be continued by a new government Board, known as the Industrial Fatigue Research Board. The new body is under the joint control of the Department of Scientific and Industrial Research, and the Medical Research Committee.

JOURNAL OF DENTAL RESEARCH

The first issue of a new quarterly periodical, the *Journal of Dental Research*, is now in preparation. The names represented on the editorial staff and among the contributors give substantial worth to the magazine. It will devote its pages to research in the science of stomatology, and will publish the proceedings of dental and stomatological societies. The journal will be supported in part by contributions for the purpose, and in part by a cumulative endowment fund. It continues the former *Journal of the Allied Dental Societies*. The editorial office is located at the office of the College of Physicians and Surgeons, Columbia University, 437 West Fifty-ninth Street, New York City.

BUREAU DEVISES SIMPLE RESPIRATOR

An improvised or home-made respirator for protection against dust, which can be supplied at little expense to workmen who are exposed to dust from the materials of their work, has been devised by the Bureau of Inspection of the New York Industrial Commission. Tests have been made of the various types of respirators. It is stated in a booklet issued by the State Department of Labor of New York, describing the appliance, that dust may be filtered out of the atmosphere effectively for four hours by the use of one-half ounce of clean, absorbent cotton, fastened to a strip of cheese cloth or closely woven muslin, five inches wide, and of sufficient length to tie about the head. It should cover the nose and mouth.

HEALTH OFFICERS' ANNUAL MEETING

National and state programs in public health and their proper reciprocal relationship, subjects which define the scope of discussion at the thirty-fourth annual meeting of the Conference of State and Provincial Health Authorities of North America, describe the symposium of the program announced by the Conference for the two-day session at Atlantic City, N. J., June 6 and 7.

Six papers are included in the program, among them being three on the subject of health insurance.

The speakers will include Dr. Frank A. Goodnow, president of Johns Hopkins University; Allan J. McLaughlin, M.D., assistant Surgeon General, United States Public Health Service; Livingston Farrand, M.D., chairman, American Red Cross; John A. Andrews, secretary, American Association for Labor Legislation; George E. Tucker, M.D., Aetna Life Insurance Company; and John A. Lapp, managing editor of MODERN MEDICINE.

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"soldiers" display in standing before their mechanical pet, just as the proud owner of an automobile at home might do. The two warriors pictured are Annamites, natives of one of the

French colonies, and were brought from their far away homes in Asia to "do their bit," While not fitted for combatant duty, they were militarized, and acted in the same capacity as our U. S. labor battalions. However, they took their duties very seriously and bedecked themselves in all sorts of cast-off uniforms--French, American and others too nondescript to classify. A picturesque lot, they afforded much amusement to the American soldiers on duty and patients at the immense hospital at * * * *, where the picture was taken. Now they have all been sent home again (how I envy them), and will doubtless relate to their wide-eyed and wondering folks at home--at least these two--how a poor soldier's uniform, fresh from the Front, would be cooly and deftly thrust into this mysterious monster, to emerge somewhat physically changed, to be sure, but transformed again for a now confiding user. This statement, of course, is not necessarily made from personal experience, but it was always comforting to know that if "company" should unexpectedly arrive, there was a way out of the difficulty, and the "Cootie Chaser" was, therefore, always kept in good trim, with a goodly pressure of steam.

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Respectfully yours,

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A Million Industrial Accidents

Between the dates of June 30, 1914, and June 30, 1918, a total of 1,099,053 industrial accidents were reported in the State of New York under the workmen's compensation law. The number of cases in which compensation was paid for disability, or is now being paid, is placed at 201,786 in reports compiled by the New York State Industrial Commission. There were 5,252 deaths out of the million and ninety-nine thousand accident cases.

Harvard Offers Summer Course

The Harvard Graduate School of Medicine has announced a summer course in physical diagnosis to be given at the Massachusetts General Hospital, Boston, Mass., during July, under the direction of Professor Richard C. Cabot, A.B., M.D. He will be assisted by Professor Lesley H. Spooner, M.D. The course will include studies and demonstrations in the examination of patients, clinical lectures and demonstrations, laboratory exercises, and autopsies and visits to other institutions.

Establish Contact Between Physicians and State

The county medical societies of Illinois are assisting the state health authorities in organizing a relay health service between state and counties, says the *Illinois Medical Journal*. The county societies designate one or more of the members as "collaborating health officers," whose task is to maintain contact with the state health officers and to keep the local society informed of current events in public health matters. They procure and distribute information upon new health legislation, new and approved procedure in preventive medicine and hygiene, and supply the state health department with information regarding local health problems.

DISPOSAL OF INDUSTRIAL WASTES

Public Health Bulletin No. 97, on the subject of "The Treatment and Disposal of Industrial Wastes," is being distributed under the direction of the Surgeon General. It contains a resumé of the data collected during 1915 and 1916 in a testing plant for the treatment and disposal of strawboard wastes.

A second treatise concerns "The Determination of Biochemical Oxygen Demand of Industrial Wastes and Sewage," prepared by Emery J. Theriault and Harry B. Hommon. The method employed has been modified to give consistent and accurate results with sewage and a variety of industrial wastes, such as those produced by tanneries, strawboard mills, breweries, distilleries, canning establishments, dairies, abattoirs, and similar plants, as well as highly purified effluents.

The experiments in the treatment of strawboard wastes were carried on with a view to developing a practicable filtration process which would relieve the paper mills of the necessity of maintaining settling ponds over large areas of land. An effluent was obtained in which it was demonstrated that fish could live. It possesses a sanitary quality such that samples were not putrescible when stored in stoppered bottles at room temperature for periods of about four days.

Recent official reports from England, states the *Vocational Summary*, give the number of men totally blinded in the war as 1,415. Belgium reported only 28, Canada 120, and the United States, according to statistics compiled by Major Henderson, Fort McHenry, only 75.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians
& for Others Interested in Administrative, Industrial
& Social Health Problems

Editors ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., and JOHN A. LAPP, LL.D.

Managing Editor JOHN A. LAPP

Editorial and Business Offices, 58 EAST WASHINGTON STREET, Chicago

Volume I.

JULY, 1919

Number 3

NOTES AND COMMENT

THE AMERICAN MEDICAL ASSOCIATION CONVENTION

THERE were many things of unusual interest at the Victory Meeting of the American Medical Association at Atlantic City. The celebration of national victory and the part which the medical profession played in it was the outstanding feature, but the discussions and forecast of new and important problems for the profession to help solve took an important place. The enrollment was the largest ever recorded for a convention of the Association held away from the centers where casual attendance is large, 4,929 physicians having been registered during the week.

The part which the medical profession played during the war was naturally uppermost in the victory celebration. The fact that 38,000 doctors, more than one-fourth of the active physicians of the country, were enlisted in the army and navy was enough to stir the enthusiasm of the assembled members of the profession. What those 38,000 physicians did in preventing disease, caring for the wounded, and restoring men was recounted by the president, Alexander Lambert, in his inaugural address, and by numerous speakers at general and sectional meetings.

The presence of representatives of the medical profession of allied countries added much to the notable occasion and served to emphasize the harmony of spirit and of effort which has crowned the success of the allies and which should now be largely promoted for the solution of the problems of peace. The war has brought about at least one definite result, namely, the recognition of the fact that medical and health problems are international and world-wide. The rapid extension of

public health activities in several foreign countries testifies of the strides made because of the demands created by the war.

In its general and business meetings the convention turned its attention actively to the new problems of preventive medicine, public health, industrial medicine and surgery, social insurance against sickness, the publication of special medical journals, narcotic drug addiction, influenza and pneumonia, venereal disease, rehabilitation of cripples of war and industry, and the application of the new knowledge of medicine and surgery in civil life. In all of these subjects there was an evident underlying purpose to broaden the influence of medicine by making its application more widespread and its effect more directly social.

One of the important suggestions which received definite action was that the American Medical Association should provide for the publication of a popular or semi-popular journal of health and medicine. This proposal which has been considered at previous meetings has now definitely gone to the executive committee for action. The intent of the publication was stated to be an endeavor to bring to the people a knowledge of what the medical profession is really trying to do.

There were numerous recommendations by speakers and committees for a national department of health and resolutions approving the expenditure of at least \$1,500,000 for a Federal survey of influenza were adopted.

The recognition of industrial medicine by giving to it the entire section of Miscellaneous Topics was a forward step in placing it as one of the new and important specialties of medicine. The

papers presented in this section formed one of the best contributions to the subject which has ever been made.

The meetings of allied organizations at Atlantic City during the same week and the following week added greatly to the convention interest. There were three solid weeks of human interest and constructive work beginning with the National and Jewish conferences of social work, continuing through the meeting of the American Medical Association, and ending with the conventions of special societies and the National Tuberculosis Association.

MORTALITY STATISTICS FOR 1917

THE annual inventory of mortality has again been made up. The Census Bureau's summary of statistics of deaths for 1917 has just been issued and it shows that during 1917 the registration area of the United States had a death rate of 14.2 per thousand of population. This rate is slightly higher than in 1916, rate being 14.2 for 1916. The corresponding rates for previous years were:

1915	13.5
1914	13.6
1913	14.1
1912	13.9
1911	14.2
1906-1910	15.5
1901-1905	15.9

Of the deaths recorded more than one-third were due to heart disease, pneumonia, and tuberculosis, and another third resulted from Bright's disease and nephritis, apoplexy, cancer, diarrhea, and enteritis, arterial diseases, influenza, diabetes, diphtheria, and bronchitis.

These figures should serve to emphasize where the vital effort of medical and public health men should be centered. Vital statistics make an excellent compass to guide preventive movements. If twelve diseases are causing two-thirds of the deaths in the United States, those twelve diseases ought to be studied with intensity by every public and private agency. The progress of medicine indicates that science can isolate eventually the causes of disease, and the concentration of attention of scientists, backed by ample support, can do much to reduce materially the deaths from the most destructive causes.

The Census Bureau reports that twenty-seven states and the District of Columbia, and forty-three cities in non-registration area states, with a total estimated population of 75,000,000, or about 73 per cent of the population of the United States, make up the registration area. The first step in the rounding up of the causes of death

should be the complete registration of all deaths in the country. That twenty-one states should have so little interest in this subject is a serious handicap.

SAFEGUARDING THE PHYSICIAN

TWO incidents have served lately to focus our attention upon the welfare of the physician. The first was the receipt of a letter from a busy physician, one of the right sort who feels his obligation to contribute all that lies in his power toward the care of the sick and the solution of the various problems of organization now confronting the profession, in which he protests against his ever increasing duties and the oft repeated urge to greater effort by saying: "What about the welfare of the physician? Is not his well-being at least as important as that of any other class?"

The other incident is the case of a young and progressive physician, one who has done earnest and painstaking work every step of the way in his career, one in love with his profession whose field has broadened and his business grown at a steady pace up to the present time. Now he finds himself at the turning of the way. A larger opportunity opens, but he hesitates because he sees no time for additional duties and no possibility that he will be able to shoulder additional responsibility. If he does not take the step forward, certainly he has set his own limit upon his career.

That the welfare of a physician is as important as that of any other class goes without question. It may be considered even more important than others to the degree that the physician does a special work no one else can undertake, a work that benefits more people than any other. As a class physicians carry far more than their equitable share of the burdens of society.

The work cries to be done now. It cannot wait until younger men are educated to fill the ranks of scientific men. The only alternative is to make every possible effort to make effectual the present squad, and to prolong their activity over a longer period than has been that of the average working years of physicians. Very definite help for the physician needs to be devised, but certainly not by lessening his sense of responsibility, and certainly not by establishing a dead-line beyond which he may not develop. When the larger opportunity comes, the physician must not be too occupied with details to recognize it; he must somehow make himself ready for it, and that without detriment to himself physically or mentally.

When a business enterprise outgrows its quar-

ters or the office force attempting to handle it, expansion immediately takes place; the man in trade builds up an organization that in a measure frees him from the details of its management, one that earns for him whether he is in the immediate vicinity or not and frees him for broader activities.

The medical profession has been a one-man business, resting upon the personality, the skill, the activities, the actual presence of one man. That kind of a business is limited by the strength and endurance of one man and crashes when he collapses. Only his joy in his work and his absolute coordination in the prosecution of it enables the physician to stand the strain of his routine. What the physician needs to learn of the business man is organization, how to realize on his ability and to conserve his strength.

At the earliest moment when his business justifies it, let the physician associate himself with another man to help carry the load, if not another physician, then a technician who can relieve him of routine, or a laboratory apprentice, or the sort of a secretary who will receive special training and become an invaluable aid in his day's work. Let him encourage such an assistant to do all he is capable of handling in the way of records, scientific and otherwise, reading and annotation. A physician who early puts this sort of a check on himself and his work

PRESIDENT-ELECT OF AMERICAN MEDICAL ASSOCIATION



REAR ADMIRAL WILLIAM C. BRAISTED, Surgeon General, United States Navy, president-elect of the American Medical Association. (Copyright by Harris & Ewing, photographers.)

THE American Medical Association at the Victory Meeting selected Rear Admiral William C. Braisted, Surgeon General of the United States Navy, as the president-elect of the Association, a fitting recognition of service and of the victory occasion. Dr. Braisted has had a long career of scientific public service. Born in 1865, he was graduated from Michigan University in 1883, and Columbia University Medical School in 1886, made assistant surgeon, United States Navy in 1890, became successively passed assistant surgeon, surgeon, medical inspector, fleet surgeon, United States medical representative in the Russo-Japanese war, and finally Surgeon General in 1914. His entire record has been one of substantial progress and fine public service. He has been twice honored by foreign governments, having received decorations from the Emperor of Japan and the President of Venezuela. President-elect Braisted will become the Acting President of the American Medical Association at the annual meeting in June, 1920, at New Orleans.

finds that his records become definite bases for statistics, his observations are not mere "impressions," he has more confidence in himself and his work. Confidence begets confidence, and he will find himself rated better by his fellows and by his clients. Moreover, he will not find himself so harassed by the details of his business; he will do more work, and better work. We have seen transformations like this take place in the records of physicians' offices. Details that had been dodged because they seemed difficult come up automatically and receive due attention and leave the physician pleased with himself because they are handled.

But it is not only in technical assistance that the physician finds help—the mechanical aids that note the forgotten point in the history, the lost address that throws him out of his schedule, the delayed appointments, the neglected account—so much as in the proper schedule for his reading. Every one demands that the physician be right up to the minute in his reading. As medical journals are published to-day they constitute a most formidable heterogeneous mass from which to sift and select his reading. It takes all a man's time and energy to cover the material in a single field. If he does not at the same time keep up on general matters he soon finds the scientific meetings a veritable tower of Babel where he cannot under-

stand even the language the others are speaking. For the busy physician library service is essential and it is available even for the men in remote districts by means of index cards and abstracts. A nominal sum annually will bring cards of all representative articles from which selection can be made. A slightly larger investment will bring abstracts of articles, verbatim translations of bits of necessary technic, an appraisal of articles, or complete bibliographies. It is "not so much to know the law as to know where to find it" and a man who introduces into his reading such a system as will insure that he keeps a survey of the literature will be abreast of the times. The grouped abstracts furnish him a basis for scheduled and constructive thinking instead of befuddled groping or spasmodic effort to keep up, and free him for original work. Moreover, two or more physicians in a community may pool their literature, and meet for exchange of thought. It is necessary that the physician do these things if he wishes to be ready for the larger opportunities as they arise, if he wants his work to be a live and growing thing, and if in the midst of his busy work he wants to find periods when he can permit himself absolute relaxation and rest.

THE PHYSICIAN'S INTEREST IN THE STANDARD OF LIVING

THE relationship between the standard of living and the health of the people is clear to every social observer. Physicians are keenly aware of the relationship because of daily observation of the economic problems of their patients who are often unable to provide some of the simple necessities for healthful living, and particularly the necessities for proper support during sickness and the means of restoration to health.

The article in this issue by Dr. Royal Meeker, entitled "Health and the American Standard of Living?" is commended for careful study as the latest authoritative summary of the existing standard of living as shown by a study of more than 13,000 family budgets in the leading cities of the country.

The essentials of healthful living are proper food, clothing, shelter, medical care, amusements, and insurance. These are all treated by Dr. Meeker with the aid of the statistical yardstick. From an analysis of the food schedules he estimated that at present it takes from fifty to sixty cents per day to supply enough food values for a man and that the normal American family consisting of husband, wife and three children under fifteen, living in the medium and large cities, must spend about \$610 a year for food.

This must indicate the necessity for an \$1,800 family income whereas the average family income is only a little over \$1,350. These figures indicate, he says, "That the workers of America are obliged to live on a diet too restricted and monotonous for the maintenance of as high a degree of efficiency and health as should be maintained as a reasonable minimum." If this be true of the average, what should we say of the millions who do not receive the average wage? Surely here is a problem for the physicians, dietitians, and sociologists to solve in order that people may provide more and make the most of what they are able to purchase.

The purchase of the other necessities of life with restricted means is only of slightly lesser importance. The family budget must be stretched to cover all and, when it is insufficient, or not scientifically spent, some essentials of health are bound to be left out.

One of the most neglected of the essentials of health is the failure to purchase adequate medical care.

Most of the diseases that arise out of malnutrition, bad housing conditions, monotony, and fatigue are slow of onset and are not likely to present the necessity for attention to-day, but to-morrow instead. The visit to the physician is postponed and neglect is added to the undermining process of lowered standards of living.

That the average family is unable to pay for adequate medical care is evidenced by the existence of so much sickness-subsidy of various types throughout the country and the many agencies designed to supply these indispensable services free or below cost. A remarkable increase is shown in these expenditures with the increase of income.

The budget figures show that medical expenses increase rapidly with income. The families having incomes of less than \$900 in Philadelphia and Boston spent \$24.15 and \$23.18, respectively, while those of \$2,500 income and above spent \$126.12 and \$67.42. "This indicates," says Dr. Meeker, "that those in the lower income groups are not able to pay for adequate medical and hospital service; for no one would contend that those in the higher income group are squandering money recklessly on physicians, surgeons, dentists, and the like."

The plain conclusion from the figures and from common observation is that the people of small incomes fail to take the ordinary precaution of calling a physician or visiting his office until a serious condition arises. The result is characterized as "a systemless system of medical sick benefits."

THE RISE OF SOCIAL MEDICINE

BY DR. RENÉ SAND, MEDICAL ADVISER TO THE BELGIAN MINISTRY OF LABOR; LECTURER ON INDUSTRIAL AND SOCIAL MEDICINE AT THE UNIVERSITY OF BRUSSELS

AMONG the factors which have won the war, organization and co-operation were the most prominent. If we stop to think of the improvements brought about during the last four years in our factories, in our armies, in the life of the people, we see that the scientific and the co-operative spirit have made the whole difference and have achieved wonders.

But as soon as we try to pervade our peace activities with these elements of success, we strike at two very paradoxical facts. The first is that the human-saving sciences have not kept pace with the other sciences. We only begin to know something about eugenics, about physiology of labor, about the factors affecting the growth of children—all things of first class importance for our prosperity and happiness. Other sciences, however, although they cannot boast the same usefulness, loom large in our museums and publications.

It seems that instead of doing the urgent job first, mankind has always preferred to begin with the less important task.

Where Medical Profession Lags

That is bad enough; but here comes the second point: it has been emphasized again and again that utilization of science has not kept pace with its advance. Lee¹ has once more pointed to this fact in a recent book, in which he tells what is known about the working of the human machine, and the little use that has been made of this knowledge. Plenty of other examples could be cited. We know perfectly well how to eradicate malaria and yellow fever, yet these diseases still claim many victims. We know that we could prevent half of the deaths which occur every year, and yet they are not prevented. Thirty per cent of the blind people would see if only a few drops of an antiseptic solution had been put in their eyes at the time they were born; and yet that

MEDICAL SCIENCE THE NUCLEUS OF COMMUNITY SERVICE

By enlarging the aims of medical science, by broadening its method, by dropping its academic and professional aloofness, the practice of medicine will tend to become more and more a nucleus of community service. The task demands frank recognition of the retarded progress in the human-saving sciences as the first step toward its correction.

The fruits of medical science are not for the esoteric few, but should be given the widest possible application, with the end in view of an enlightened public mind.

very simple precaution has not been taken. The reason for these deficiencies is that there is no program for the scientific organization of mankind, no agency to study such a program, no teaching given on the matter.

We will never reach the point where we really govern ourselves and master the world until the universities are made the centers of communities; until they become civilly constructive.

American universities are quickly moving in that direction. In the United States people have realized that a university is not primarily a place where young men play football and learn Greek or mathematics; neither is it in principle a school for lawyers or physicians, nor a museum where experts, in a comfortable environment, study at leisure some old Assyrian inscriptions. These academic activities are very valuable and necessary, but we must put foremost a higher and more general purpose—the welfare of the nation.

Newer Conceptions of Ideal

The constructive university will not include many more sciences than the university of to-day; it will rather teach them from another viewpoint. We explain to our undergraduates how to prevent tuberculosis by avoidance of contact, a well balanced diet, good housing conditions, and rest. Very well; but we do not tell them how to provide those things. The way public health should be taught would strike at the root of the question and proclaim with Surgeon General Gorgas that the greatest public health measure that can be introduced is a minimum wage law.

I would go a step farther than preventive medicine, and teach social medicine. There is a field between sociology, statistics, biology, medicine, hygiene, and philanthropy, which is a kind of no man's land. Some patrols start from the biology border, explore a little stretch, and then come back. The same occurs from the medicine border, and from every border. When two patrols com-

¹Lee, Frederic S.: *The Human Machine and Industrial Efficiency*. Longmans, Green & Co., 1918.

ing from different borders, meet each other, they sometimes fraternize; more often there is a big scientific fight. I do not mind very much this kind of fighting after having seen the other kind. The worst feature is that the patrols seldom meet, so that the knowledge which one border gains about the no man's land is lost for the others. There is no coordination of effort, no planning together, no team work.

What Is Social Medicine?

This could be avoided and a real need be met if we started frankly to organize that field under the auspices of social medicine.

Social medicine means the medical end of the social questions, or the social end of medical questions, as you prefer to put it.

Almost every medical question ends in a social question. Hygiene, for instance, was first thought of as an individual science and art, a kind of personal wisdom. You cannot, however, prevent disease by your own efforts, if your neighbor is not willing to do the same, if the whole community does not take up the matter. So individual hygiene was supplemented by public hygiene. That was only a further step towards the goal. It means a great progress to distribute pure water, to establish drainage and sewerage, to build isolation hospitals; but hygiene is not the mere art of keeping nuisances away; that is its negative part, if I may say so—no microbes, no flies, no bad smells, and so on. The positive part is much more important; it includes a comfortable home, good food, recreation, fresh air; and these things are intimately connected with economic and social conditions. So public medicine goes over to social medicine, an outcome of our time, and the basis of reconstruction work.

The same evolution occurred in medical practice. The relation between physician and patient was first purely individual; then the public element came in, and we provided hospitals, clinics, dispensaries, etc. But the necessity arose of supplementing medical diagnosis and medical treatment by social diagnosis and social treatment. American vision led the way; hospital social service was started; social workers and doctors began to cooperate.

Hospitals as Health Centers

I think we must go still further, and make of every physician a social worker, of every hospital, a community center. That this need is widely felt is shown by a recent decision of the London Hospital trustees; the consulting physicians and surgeons are to be replaced by full-time resident doctors, who will not only be in charge of the

hospital wards and out-patient departments, but will also extend their work to the neighborhood. In this way the hospital and the community will be brought into the closest possible contact, and the students will be fully prepared for their future activities. Hitherto they have practiced in the hospital only, where everything is provided, and no obstacle blocks the way to treatment. How different things are when the patient is visited in his house, and it is realized that therapeutics are often of little importance as compared to the relief of economic conditions, to readjustment of work and family life.

The rehabilitation of the crippled soldier points in the same direction; it has taught us that physical reconstruction cannot be separated from vocational reconstruction. And so our hospitals have been put into relation with industry and labor, a lesson which is now being taken into account for the rehabilitation of the industrial cripple. Once more considerable progress has been made by breaking down the fence which surrounded the hospital.

Life does not recognize our nicely drawn classifications. They are valuable in so far as they make learning, research, or administration easier. They become a nuisance as soon as they obscure in our minds the interdependence of the innumerable factors which affect mankind.

The Social Sciences Merge

Medical questions simply cannot be separated from social problems.

Study delinquency, and you learn that it is intimately connected with mental abnormalities.

Deal with the wage question, and you see that infantile mortality increases terribly as the family income decreases.

Investigate labor conditions, and you cannot avoid bringing physiology and pathology of fatigue into the field of research.

One enters into charitable work, only to find that disease, and especially tuberculosis, is one of the main factors of poverty.

Social medicine, which bridges the gap between sociology and medicine, would have been constituted long ago were it not for the fact that it needs to teach the physicians the biological, statistical, and social methods. Now, biological methods the actual or future physician will accept without too great trouble. There will be more resistance to statistical methods, as they need the use of higher mathematics, and fumbling about in terrible books like the Census; but even that, the better type of undergraduate or doctor will admit finally, on account of the scientific stamp that statistics receive from mathematics.

When it comes to sociological methods, however, the average medical man revolts; surveys, inquiries, social case work, all seem too human to be scientific, and they mix one up with all kinds of social questions, nearly related to political questions. That is a slippery field.

A Very Old Science

Yet we have got to plough up this field, and it will give us the richest crop that science has ever reaped, because then we will no more guess, we will *know*, about the social questions.

No progressive law, be it a child welfare law, a labor law, a housing law, a wages law, can be effective unless it is based on social medicine. No such law can be enforced until public opinion is enlightened about social medicine, which is after all a very old science. Hippocrates, Galen, Pliny the Younger, Paracelcus, Ramazzini have long since mentioned the workmen's diseases.

The name social medicine was coined in France about 1840, and was given prominence by Rudolf Virchow in 1848. After a period of silence it has begun to be revived in America, in Great Britain, in Germany. The American Public Health Association and the British Medical Association have had for some years Sections of Sociologic Medicine. There existed in Berlin an Association for Social Medicine and Medical Statistics. The Belgian Association for Social Medicine published a quarterly bulletin, and was making rapid progress when war broke out. Teaching in social medicine was given at the University of Brussels to doctors who wanted to secure the public health diploma.

Several American universities have started or are starting schools and hospitals of industrial medicine. Many of them are more or less closely connected with the schools of social work.

We can already foresee the time when every school of medicine will devote the greatest part of its activities to social medicine. By enlarging its aim and broadening its method, by dropping its academic and professional aloofness, Medicine will become the center of community service.

DR. HUBERT WORK ADVISES EARLY STANDARDIZING OF HOSPITALS

To hasten the standardization of hospitals and to bring within reach of the average family income the skill of the physician and surgeon in diagnosis and treatment, have become the chief concerns of the medical profession and the members of the American Medical Association, in the reconstruction that has begun since the doctor returned from war, according to Dr. Hubert Work, chairman of the War Committee of the American Medical Association, and Speaker of the House of Delegates of the Association at the Atlantic City meeting of last month.

The American College of Surgeons was commended in the address of the Speaker, and the cooperation of the two associations was strongly urged. Dr. Work called upon the House of Delegates of the American Medical Association to consider the advisability of recommending to the trustees that a Council on Hospital be created.

All detail relating to the hospital care of the sick would have the attention of a bureau of information and standardization. The bureau would seek the aid of experts in fixing standards in hospital architecture, construction, plumbing, organization, contagious diseases, general medicine, surgery, interns, practical nursing, and other factors.

The changed conditions which physicians face upon their return from military service challenge all the ability and foresight of the medical man, stated the speaker. Dr. Work said in part:

"Thoughtful men agree that we are entering on a new era in medicine which will compel the closest interrelation between physicians, hospitals, nursing, and the public. It is not probable that practice will again be followed as heretofore. The time is passing when the personality and skill of a single physician will satisfy his patrons, or command a fee measured only by the patient's ability to pay, for skill is no longer limited to a few."

"Teamwork of physicians and the evolution of the hospital, which provides all domestic and medical service, has given the public an economic idea which will hereafter direct the practice of medicine."

"Cities and large towns already have their hospitals; rural communities soon will have, state-aided no doubt, for it is a short step from state care of the insane to state care of all sick."

"The greatest future concern of the American Medical Association may be its direction and oversight of hospitals; the practicable achievements of its five councils, if you please, brought to bear on common centers for the cure of the sick."

The position of the practicing physician and the undergraduate in the medical school were subjects chosen for comment by the speaker, who said:

"It is evident that the relentless pressure of this association for higher college and professional standards, with their time and financial exactions on the one side and the decrease in disease through preventive medicine on the other, are grinding between them students and physicians of average opportunities."

"Medical requirements for practice demand at least seven years of schooling beyond the high school. In some universities, two degrees and nine years' time are demanded for graduation. That included in the average medical school curriculum costs so much in time and money that only the rich can attain it. The crossroads communities will soon have no qualified physician, and from necessity will revert to the opportunist and the mid-wife. Should undergraduate schools undertake to finish specialists in medicine—presumably the function of post-graduate schools?

"The primary function of a physician, to cure the sick, is submerged by the scientific ambition to diagnose rare diseases or a few ailments, with an inevitable loss of perspective necessary to the accomplished diagnostician. Failure to gain practical knowledge of the simple things in medicine tremendously depreciates recent graduates. American medical colleges are graduating medical scientists, and our hospitals, nursing specialists—both technicians and both out of reach of the family of average means."

The Kids' Friend

The late Colonel Theodore Roosevelt felt a personal interest in child welfare. He is here pictured inspecting a "Diet Squad"



Plenty of wholesome, well-cooked food put smiles on these faces and dimples in the kiddies' cheeks, and has made them healthier and stronger than many of their playmates.



The School Lunch Committee serves hot, noon-day lunches to Food Scouts.



The photograph above shows members of the Food Scouts at one of New York's schools being weighed before starting their diet test of a square meal extra each day.



The children are taught the right way to brush the teeth.

(Photo by International Film Service Co., Inc.)



His first hearty meal event for this boy. He likes its color, but eating fresh fruit is something new to him and he wants to see what it is before it goes into his mouth. The picture at the bottom of the page shows the girls of a New York children's home sunning themselves in steamer chairs a part of the daily routine at the home when the weather is pleasant.



The photograph above was taken at a booth in the Grand Central Palace Food Show, New York City, where five hundred pupils of Public School No. 50 were weighed and measured to demonstrate the beneficial effects of the health rules and the system laid out by child welfare organizations in conjunction with the United States Food Administration, for improving the health of the city's children.

The Food Scouts

A square meal extra each day for three months put brawn on these New York youngsters, who were not used to eating square meals.

WHAT IS THE AMERICAN STANDARD OF LIVING?

BY ROYAL MEEKER, B.Sc., PH.D., UNITED STATES COMMISSIONER OF LABOR STATISTICS, WASHINGTON, D. C.*

REFERENCE is constantly made in the press and in public utterances to the American standard of living, as if it were a standard as definite and well known as the foot, the pound, or the peck measure. Speakers and writers take it for granted that everybody knows what the much quoted American standard of living is although they do not specify what is included in it and, when asked for particulars they become vague and oratorical. It gets us no further toward an answer to be told that the American workingman is the best fed, best clothed, best housed, and most contented workman in the world. It may be accepted without argument that, occupation for occupation, the American workman receives higher money compensation than do European workers, and that his higher money wages actually enable him to purchase more of the necessities of life than are obtainable by the European workers for their wages.

More exact information is necessary to determine what the American standard of living means. The investigations into cost of living made prior to 1915 are of little help. The classic cost-of-living study made by the United States Bureau of Labor in 1901, and published in 1903 as the Eighteenth Annual Report of the Commissioner of Labor, helps but little toward the desired goal. Except in the case of food, all this study brings out is the cost of living—not the standard of living. Even for food this 1901 study does not afford exact enough information as to the quantities and kinds of food to enable one to determine whether the families studied were sufficiently nourished. The study made by Dr. Chapin is too limited in scope to reveal the American standard of living. It is also questionable if the families studied were truly representative American families.

The generalizations made in this paper are based on the results so far as they have been analyzed of the country-wide cost-of-living study

The fighting armies in France opened the eyes of industry to the economic benefits of medical science. Intelligent medical service, wise preventive measures, and the salvage of human lives by rehabilitation of the disabled, strengthened the allied armies to the point which brought victory to their arms.

How shall this new power for social good be kept at work in the era of peace, except if industry makes a fast principle of rehabilitation for the disabled?

There are many shortcomings in the mode of living that must be attended to if the world is to profit from the experiences of the war.

families studied were obtaining a sufficient number of calories and sufficient variety in their diets to maintain their members in health; (3) if possible to work out standards similar to the recognized dietary standards, for clothing, housing, fuel, house furnishings, education, amusement, medical care, insurance, and perhaps some other items which have been heretofore blanketed and lost under the term "miscellaneous"; (4) eventually to formulate tentative standard budgets to be used by wage adjustment boards in determining minimum and fair wage awards; (5) to enable the Bureau of Labor Statistics to compute a cost of living index number that will show variations in total family expenses in the same way as the retail food price index shows variations in the cost of the family food budget.

It is evident at once that such a study presents enormous difficulties. One should not, however, refrain from attempting an undertaking merely because it is difficult. Everything that is worth doing is difficult. The first great task was to find out what workingmen's families buy, how much they expend, and how much of each article bought they get for the money paid out. It is in many respects unfortunate that the study had to be made during 1918-19 when prices were abnormal, resulting in abnormalities in expenditure, and when such stress had to be laid upon the necessity of investing in Liberty Bonds. The distribution of expenditures over the items of the family budget were greatly disturbed by the rapid changes in prices and wages. The loan campaigns resulted in inducing workmen to curtail expenses

*Address delivered before the forty-sixth annual meeting of the National Conference of Social Work, Atlantic City, June 7, 1919.

for clothing, house furnishing, amusements, and perhaps even fuel, housing, and food itself, in order to invest in bonds. The result is unusually large savings reported and abnormally low expenditures for other items where curtailment is possible. Many families not only economized on clothes and house furnishings but actually skimped themselves on food, both because of the high prices and because of the intense Liberty Loan drives.

More than three hundred agents were employed by the Bureau of Labor Statistics to secure from housewives statements of their expenditure for an entire year. The information thus secured for the entire year by personal interview was checked in many instances by daily expense accounts, which many housewives were prevailed upon to keep over a period of not less than five weeks. These daily expense accounts are especially useful in checking up expenditures for food and other articles bought daily or weekly and easily forgotten.

Nearly 13,000 family schedules were obtained in seventy-one large cities and twenty-six small cities and towns in the different geographical sections of the country for incomes ranging from less than \$900 to more than \$2,500 per family. These family schedules are now being tabulated. It cannot be said yet whether all of the objects for which the cost of living study was undertaken will be attained or not. The actual expenses for the different items of consumption are now being tabulated by income-groups. Not only do we have the cost but in most instances we have the quantity of all important items of the family budget. The quantity bought is absolutely essential for working out standard budgets. Expenditures stated merely in sums of money are useless for the determination of the standard of living or of the quantitative change in the cost of this standard of living.

Food

Quantitative standards to measure the sufficiency of the family food budget have been worked out tentatively in dietary studies. Men do not eat, or wear, or burn dollars and cents. If the price of beef goes up we can eat less beef and more of some other protein rich food, and perhaps keep our money expense for food constant; but if the price of all food increases 100 per cent we cannot cut down our consumption of all food one-half so as to keep our food budget expense unchanged. To speak with scientific accuracy man does not live by loaves of bread, pounds of meat, pecks of potatoes, quarts of milk, etc. He lives by the energy stored in food which energy is measured in heat units called calories. Even this does not

tell the whole story of food because it makes a difference from what source the calories are derived. There must be a proper balance between proteins, fats, starches, sugars, cellulose, fruit acids, and mineral salts. The last three classes of foods furnish us no calories at all, but they are just as essential to a healthful diet as are the fats, sugars and starches which furnish a large quantity of calories. By far the best single measure of the sufficiency of a diet is, however, the calory. Unless the average active worker consumers and assimilates from 3,000 to 3,500 calories per day he will inevitably either lose weight, or efficiency as a worker, or both, and this regardless of the number of dollars he spends for food, or even the number of pounds of bread, beans, and beef he eats. Unfortunately, bread, beef, pork, and even eggs, and potatoes, vary considerably in the caloric content per pound. It would be a great step forward if while weights and measures are being reformed the law should be made to require that the prices of all foodstuffs must be expressed in terms of calories just as in Great Britain, and to some extent in this country, coal is sold, not by the ton, but by the British thermal unit. If it is possible to calculate the caloric content of the food for our furnaces, it is surely possible to do so for the food for our stomachs. It is, of course, highly desirable to eliminate from the diet of our steam boilers and engines as much slate, ash, and boulders as possible: it would seem even more desirable to eliminate from the diet of human beings the things that are sold as bread but are not bread, the bone that is sold for beef, and the gristle that is called pork chops by the butcher. There are no insuperable obstacles in the way of selling bread, beef, pork, eggs, milk, onions, corn, sugar, etc., by the 100 or 1,000 calories. It should be done and it can be done.

By the time people become educated to the point where they recognize that the important thing in regard to food is not its price per pound or quart, that oftentimes the cheapest food per pound is the most expensive per unit of nourishment, no doubt they will have learned also that man can not live by bread alone or even by calories alone. Fruits and vegetables must be used largely in a proper diet even though their caloric content is low. A proper balance between proteins, fats, starches, sugars, cellulose tissue, minerals, and acids is necessary for the maintenance of health.

Some considerable change in diet is shown since the 1901 study was made. This of course was to be expected in view of the greatly increased prices. The present study reveals, however, that the American family does not suffer from overfeeding as has been so frequently alleged. On

the contrary, in most of the communities studied the food purchased represents less than 3,500 calories per equivalent adult male. It is necessary to buy about 3,500 calories in order to secure 3,000 calories per adult male, which is considered to be the amount required by moderately active workers.

Granted that to maintain the average adult worker in health and efficiency, it requires approximately 3,000 calories of food energy consumed which amount can be obtained from about 3,500 calories of food energy purchased at the stores, how is this knowledge to be used to determine the adequacy of the food budget of a family consisting of husband, wife, and five children of 16, 13, 10, 5, and 2 years? In order to measure the food requirements of a family there must be established a consumption yardstick to measure the number of calories needed by each member of the family. Experiments have demonstrated that food consumption of adults varies approximately with the weight of the consumer. Women on the average are about 90 per cent as heavy as men, therefore, a woman is rated in food consumption as equal to 90 per cent of a man. Children of different ages are rated in food consumption as follows in terms of an adult man:

Ages above 14 years (males).....	100 per cent
11 to 14 years.....	90 per cent
7 to 10 years.....	75 per cent
4 to 6 years.....	40 per cent
3 years and under.....	15 per cent

These equivalents are quite rough but serve to express the food consumption of families of varying composition in terms of a common unit of measure, namely, the equivalent adult man.

The food requirements of the family above mentioned would be, according to this scale, equal to that of 5.1 adult men. Allowing 3,500 calories of food purchased per man, this family should use food analyzing not less than 17,850 calories each day of the year. These standards of measurement are but approximate, it is true, and deal with averages. There are very considerable individual deviations from the average. The average man does not exist, but the world is full of living, breathing men who look, act, and eat so much like the hypothetical average man that it requires an expert with microscope, measuring tape, and scales to tell the difference.

The family food budgets are now being analyzed, but it can be said with confidence that it requires to-day an expenditure of from 50 to 60 cents per man per day for food to secure a well balanced diet sufficient in the number of calories and in variety. This means that American families consisting of husband, wife, and three chil-

dren below the age of fifteen years, living in large and medium size cities, must spend about \$610 per annum for food to keep themselves properly nourished for health and efficiency. This expenditure for food goes with incomes of from \$1,800 to \$1,850, so we may say that American families on the average are not fully nourished until their yearly income reaches to \$1,800. These figures do not indicate that our people are to-day suffering from eating too much meat, or even too much of other foods not so expensive. The average income and the modal income both fall well below \$1,600. The modal income is about \$1,350 and the average not greatly higher. Conclusions must not be too hastily drawn from these figures. They do not mean that the working population is dying of slow starvation. Nothing of the sort; but they do indicate that the workers of America are obliged to live on a diet too restricted and monotonous for the maintenance of as high a degree of efficiency and health as should be maintained as a reasonable minimum. And it would seem that the most efficacious remedy is not higher wages, but rather improved systems for distributing and marketing foodstuffs, and education of housekeepers in the art of keeping house with emphasis on diets. Housekeeping is not exactly a lost art; it is one of the arts that has not yet been completely found.

Clothing

No standard has yet been devised for measuring the adequacy of expenditure for articles other than food. The adequacy of clothing, for instance, cannot be measured in pounds, calories, or square yards. It is interesting to note that actual expenditure for clothing in all income groups combined for wives and children of different ages conforms quite closely to the scale for food consumption. Unfortunately there is no unit of measure with which to determine whether the clothing bought is adequate or not. The charge so frequently made that the American working-man is extravagant in expenditures for clothing for himself and his family seems hardly borne out by the facts reported. Expenditures for clothing per adult male during the high-price year, 1918, ranged from a minimum of \$30 in the lowest income-group to about \$180 in the highest income-group. The average clothing expenditure for the modal income of \$1,350 is probably not more than \$90. This does not seem to give much room for extravagance in clothing at the existing prices. Probably this sum is sufficient to enable the prudent and economical housewife to keep her family clothed warmly enough, but it does not leave much margin for style. Clothes were first invented, not for protection against heat, cold, and

wet, but for adornment and it is for the purpose of ornamentation largely that clothes are worn to-day. The bizarre notions of beauty possessed by the designers of clothing are incomprehensible to ordinary mortals, but as long as society accepts these ridiculous and often health-impairing standards of dress, society must stand ready to provide the worker with a wage sufficient to enable him to conform to the accepted fashion. It is repugnant to our sense of right that the working classes should dress in a way to set them apart from the more well-to-do. Few men and women among the workers in this country are willing to appear in public unless they can dress near enough to the mode or the standard of fashion so as not to attract critical attention. It is very clear then that the clothing of the worker's family should not consist merely of material to protect them from the icy blasts of winter, the blazing rays of the sun, and the dews and deluges of heaven, but should possess something of that subtle something called style. Style is expensive. Also, there is no standard of style. There are not even standards of dress fabrics. However, standards need not be exact to know that \$90.00 per adult male per annum is not too much for clothes in the varied climate of the United States.

It is interesting to note that wives spend less for clothes than husbands until we reach the higher incomes, about \$1,800 per year. It is also of interest that when economies are necessary they are made largely at the expense of the wife's wardrobe. The first baby makes a cut in the mother's clothes money, and every addition to the family cuts deeper into this item. It is scarcely fair to say that American wives prefer clothes and upholstered parlor furniture to children. It costs money, pain, and sacrifice to bear and rear children, however, and the study of the Bureau of Labor Statistics shows with startling vividness the extent to which the mother is obliged to sacrifice her house and her personal adornment to her children.

Housing

According to the British housing experts, overcrowding does not begin until there are more than one person per room. If this standard be accepted as satisfactory then there is little overcrowding in American workingmen's families; however, while the average number of rooms per family is usually quite sufficient the average room is not so satisfactory. Unfortunately it was not feasible to make an intensive study of the size and suitability of the rooms occupied by the families studied. For the typical family of husband, wife, and three children under fifteen years,

there are in the cities for which tabulations are completed invariably more than one room per adult male. The rooms per person decline as the size of the family increases. Families having an income of \$1,300 also have well over one room per person. The number of rooms per person does not reveal whether housing is satisfactory. For example, the rooms per person is higher among colored families than among white families in Baltimore. No one would maintain, however, that housing conditions are better among the colored people than among the whites.

The amount spent for rent varied from \$105 per annum for the lowest income-group in Fall River, Mass., to \$355 per annum for the highest income-group in New York City. For the modal income of \$1,350 the average rent paid in large cities is probably not far from \$200 per annum for the typical family.

The study does not give a complete or typical picture of housing conditions among workers' families. In order to get comparable figures of family income and family expenditures for food, clothing, housing and other items, no families were scheduled who kept boarders and no families with more than two lodgers were taken. These rulings were absolutely necessary to confine the study to normal, natural families, but by so limiting the study no information was obtained as to the extent to which families resorted to taking boarders and the amount of overcrowding resulting from the almost universal practice of taking in lodgers during the housing shortage of the war period. It is a necessary function of the community to provide suitable houses for the people at reasonable rents. As long as the provision of houses is left to speculators and contractors the workers cannot be properly housed.

Fuel and Light

It is possible to determine from the information on the schedule whether the families studied used enough fuel to keep their houses comfortable, but the information has not yet been tabulated. It is reasonably certain, however, that the American family does consume abundant fuel so that the living room can be lived in during the winter. Artificial light is probably sufficient also.

House Furnishings

As for house furnishings all that the schedules give is the yearly expenditure. Nothing is known about the stock of household goods possessed by the average American working family. It should not be an impossible task for experts in domestic science to determine the minimum requirements in the way of standard house furnishings for the

typical family. A special intensive study could then be made to determine how near American families come to the minima.

Care of Health

Among the expenditures lumped as miscellaneous are some highly important and significant items. Expenditures for sickness and death are the most significant in this group. The amount and kind of medical, surgical, dental and other kinds of treatment in sickness required by the average American family can not be obtained from the family schedules. The amount paid out by each family on account of sickness is given on the schedules. And the average amounts can be computed for different income groups and for all groups combined. The average expenditures vary greatly from family to family and from group to group. In Philadelphia those having incomes less than \$900 spent on the average during the year \$24.15 for health care, while those with incomes of \$2,500 and more expended \$126.12. In Boston the expenditures for these two income groups were \$23.18 and \$67.42, respectively. The average for all incomes in all cities would probably be from \$45 to \$55.

Despite the great irregularities in the distribution of these expenditures for sickness there is a remarkable increase with the increase in amount of income. This indicates that those in the lower income groups are not able to pay for adequate medical and hospital service, for no one would contend that those in the higher income groups are squandering money recklessly on physicians, surgeons, dentists, and the like.

The value of these figures is greatly lessened by reason of the fact that so much wholly unregulated, uncontrolled, haphazard, unplanned, unintelligent, more or less voluntary, and wholly unrecognized sickness-subsidy prevails throughout the country. This means that the average worker is not able to pay full price for the medical, surgical, hospital, and dental services needed by himself and his family, so the community or subsidized hospitals give him these indispensable services free or below cost. The result is indifferent medical and hospital service at a cost impossible to estimate accurately because there is no uniformity of practice and no adequate public control. In Massachusetts it is estimated that the workmen's compensation cases sent to hospitals for treatment pay only about 50 per cent of the actual cost of the treatment. This is handing out sickness subsidies to employers and insurance companies, not to injured workmen. This is the worst form of protective subsidy to industry.

The workers who are driven by dire necessity to make use of the free wards in hospitals either

learn to hate and distrust all hospitals and medical men because they are not given proper treatment, or they become partially or wholly hospitalized because they survive the treatment meted out to them and rapidly learn to like the carbolated atmosphere of our hospital almshouses. This systemless system of medical sick benefits, bestowed not as the just and recognized due of the worker, but as charity handed out by a benevolent community or by private philanthropists, constitutes the worst possible form of sickness pensions that could possibly be devised. Voluntary benevolent sickness subsidies and pensions achieve the minimum of results at the maximum of cost. They reach but a minority of those who need medical and hospital care. These obvious defects of the existing system of sickness subsidies are not pointed out in order to condemn it and recommend its abolition. On the contrary, these subsidies are absolutely indispensable and cannot be abolished without very serious consequences unless something better is devised to replace them. It is useless to talk of paying the workers a wage sufficient to meet all needed sickness expenses. This would make the misfortunes of the sick redound to the profit of the well. The health of the workers never will be adequately cared for until a system of universal sickness or health insurance is substituted for the present system of sickness subsidies. No valid objection can be raised to the public paying a part of the expenses of such a system, as the public is in a large measure responsible for the unhealth which exists to-day. But the worker should pay a share, for he is responsible in some degree for sickness in his family. Above all he should feel when he receives medical, surgical, and hospital treatment, that he is receiving services which belong to him of right, and not alms, from either the state or private persons.

Selective Draft Lays Fallacy

The sickness and physical deficiencies revealed by the selective draft have happily laid forever the carefully fostered fallacy to the effect that the American workman is so well paid, so well nourished, housed, and clothed, and so intelligent, that he needs nothing in addition to the existing agencies to look after his exuberant good health. The quantitative consumption of health giving and health maintaining services in the average American family is certainly very much below what is necessary to attain and maintain reasonably good health. It is very clear that the medical profession and the hospitals must be more completely and effectively organized and directed for the purpose of improving the health of the community. Until this is done it is scarcely possible for the

average American family to buy the required amount of health service to keep health and efficiency up to a reasonable standard.

Insurance

Consideration of the adequacy of health expenses brings us directly to the subject of insurance against the hazards of death, sickness, accident, old-age and invalidity, and unemployment. In modern life, provision against these hazards is just as necessary as medical service, or, for that matter, food. The amounts spent by American families for life insurance in 1918 ranged from about \$10.00 in the lower income groups to about \$65.00 in the higher income groups. The average is probably not far from \$40. This amount paid each year in premiums for ordinary life and term life policies would give the average family sufficient protection against the hazard of death. Unfortunately the agents in the field found it impossible to distinguish between so-called industrial insurance and bona fide life insurance. It seems at first blush as if it should be easy to differentiate between them on the basis of cost alone, but the amount of the policies was frequently not obtainable from the housewife, so the cost per \$100 could not be ascertained. It was discovered, payments were very often accepted by the agents of the burial insurance companies semi-annually or even annually, so it was not possible to make the distinction on the basis of the terms of payment of the premium. About all it is possible to deduce from the schedules as to life insurance is that the workers pay enough on the average to secure sufficient protection against disastrous poverty resulting immediately from the death of the principal bread winner of the family. Whether they get this sufficient protection is another matter. As explained above it was impossible to get the quantity and kind of life insurance bought at the prevailing market prices. Furthermore, only a part of the workers are insured at all, and those who most need life insurance are least able to buy it.

While payments for life and burial insurance by the average American family are as large as can be afforded and should buy enough insurance adequately to protect the family, the case is entirely different as to casualty insurance and so-called "health insurance." The average expenditures for these two kinds of insurance ranged from nothing in the income-groups below \$900 to \$5.44 in the income-group \$1,800 to \$2,100 in Philadelphia. The amount of premiums paid by different families is very irregular. The average amounts paid by different income-groups and even by all income-groups in different cities obeys no statistical law. The average for all families in

Boston is 95 cents per annum, while for Philadelphia it is \$2.74. It is very evident that no appreciable insurance protection against the hazards of accidental injury or sickness is included in the budget of the American working-man's family. Yet these injuries occur many times more frequently than death, and their hazards are just as readily calculable as is the hazard of death. It is not possible for the worker to buy adequate protection against the hazards of injury from accident and sickness even at the exorbitant prices charged by the private companies because the companies do not sell the protection needed. The case is even worse with old age, invalidity, and unemployment. Some trade unions and a few establishments pay small benefits for old age and invalidity. Out-of-work benefits have been paid by a few trade unions in times of great stress. Unemployment is the one hazard that is purely industrial, and it causes more distress and social demoralization than any other hazard affecting the life and health of the workers. Yet nothing has been done about it by industry and next to nothing by society. The whole burden falls upon the individual worker except for the feeble, sporadic help given by a few trade unions. Industry should be made to pay the costs of production. A part of the costs of production under the present organization of industry is unemployment tempered by underemployment and overemployment. It would be a very simple matter to put the money costs of unemployment upon each industry in which employment is regularly irregular. This should be done. As it is now, the worker does not and cannot include in his budget protection against unemployment and the onset of old age and invalidity. Some unascertainable part of his trade union dues, if he pays any, goes for the purchase of an indefinitely inadequate amount of protection against these ills.

Insurance Stabilizes Family Life

The percentage spent for insurance in all forms is not large, but its importance is much greater than this percentage indicates. Insurance makes for stability of family life, by distributing throughout the community shocks that would crush individuals and families. The present cost of insurance is so high that the workers are debarred from purchasing enough of it. The protection offered by private profit seeking insurance companies is not secure and many inevitable contingencies are not included in their policies at all. Insurance is a relatively simple matter. It could be conducted as a community enterprise reaching all the people at half the expense now involved. The moral is obvious.

Amusements

Amusement is one of the most serious things in life. Wholesome laughter is as necessary to health and efficiency as good food and suitable raiment. Unlike the other wants considered, amusement is subjective, not objective and therefore no objective unit of measure is conceivable. It is wholly impossible to guess how much amusement is obtained from a 17-cent moving picture show. It is clear that large numbers of people must be amused by the movies else the picture houses would not be packed. It cannot be said, however, that the families which patronize the movies get any more fun out of life than those which stay at home or go to the church festival. You can't keep people from being amused. They will get fun out of the hardest conditions of life. Tom Sawyer, by using the most approved methods of the trust promoter and the professional advertiser elevated fence whitewashing from the lowest form of menial drudgery to the rank of the most popular outdoor sport in his home town, so that for the time swimming and fishing were forgotten. The variety and weirdness of the different forms of amusement are astonishing. Some people derive much genuine enjoyment from funerals; others seem to get quite as much fun out of grand opera. I once knew a physician of sound mind who got his recreation and amusement from directing a volunteer church choir. Truly in the realm of amusement "One man's meat is another man's poison." One man will listen to a lecture on the Russian drama and will be upbuildest and refreshed amazingly; his neighbor will be put to sleep, and another will be driven toward homicide by the same lecture. The number of movies, dances, concerts, and the like attended by a worker and his family has no recognizable relation to the quantity of amusement they have imbibed. While all admit that "All work and no play makes Jack a dull boy," it may well be doubted whether the play furnished by the movies will make Jack brighter or duller.

Expenditures for movies increase consistently with increasing income. Only 38 cents per annum was spent for movies by families having incomes under \$900 in Philadelphia, while the families having \$2,500 or over spent \$37.32 for movies. In Boston the range was from 87 cents to \$34.39. The average for all incomes was \$10.18 for Philadelphia, and \$6.49 for Boston. Other cities show much the same averages and range of expenditures. The total average expenditure for all amusements amounted to \$12.40 in Philadelphia and \$9.23 in Boston. We do not know whether this means that Philadelphia working people found existence more amusing than Boston work-

ers, or whether their lives being more sad they were driven to the movies and the pool parlors for cheer. We may assume that the sums spent for amusement in the income-groups above \$1,300 are sufficient for recreational and health needs.

Conclusion

From this very brief analysis of the data thus far worked up from the cost of living schedules it is very apparent that there is no such thing as the American standard of living in the sense of a very superior standard giving all the necessities, many of the comforts and a goodly supply of the luxuries of life. On the contrary it is found that there are as many different standards as there are different incomes and families of different sizes. In the lower income-groups the living conditions are hard indeed. The incomes of the lower-paid workers must be increased and the cost of food, clothing, and housing must be lowered to enable these families to meet the high costs of existence. Social legislation is needed to give them better and cheaper food, clothing, houses, medical treatment, and insurance. Even in the higher-income-groups conditions are not as easy as they are frequently pictured to us. Let us not be fooled by the cry that the American standard of living is the highest in the world. Let the minimum living standard in America be one that will support life in decency and health.

EXPANSION OF MEDICAL SERVICE

Though the American public is served by twice as many physicians in proportion to population as the most favored European country, an increasing demand for medical graduates and physicians in all branches of medical service has prompted the Council on Medical Education of the American Medical Association, in its annual report, to express the following convictions as to the needs of the medical profession, the public, and the medical colleges:

"There is an increasing demand for physicians for various lines of work," says the Council, "a demand which can be met only by continuing the high standards of preliminary and medical education now generally adopted, and by further improving our facilities for both undergraduate and graduate medical teaching. This demand for physicians is increasing for the following reasons:

"(a) The work in the public health and preventive medicine is being rapidly expanded especially along the lines of quarantine work, sanitary inspection, medical inspection of schools, etc.

"(b) There is an increasing demand for physicians who specialize in laboratory diagnostic work. Such positions now carry larger salaries and are attracting an increasing number of medical graduates.

"(c) There is an increasing demand also for full-time teachers in medical schools for both laboratory and clinical subjects. These places are not only paying better salaries than formerly, but are attractive to many on account of the opportunity for scientific experimentation and research.

"(d) The rapid development of insurance has brought

an increased demand for physicians who devote themselves entirely to such work. With the extension of industrial insurance this demand is bound to be still further increased.

"(e) The increased study and research being given to tuberculosis, to mental diseases, to cancer and other like problems, is attracting many who would otherwise continue in the practice of medicine.

"(f) The tremendous interest being aroused for the development of hospitals in smaller cities and rural communities will create a demand for recent graduates as resident physicians in such hospitals. Through the inability to secure interns, hospitals will be inclined to employ resident physicians for a series of years on progressively increased salaries.

"(g) In the reorganization and improvement of hospitals there is a growing demand for those to serve as superintendents who can combine their medical training with administrative ability."

MORTALITY STATISTICS FOR 1917

A death rate of 14.2 per 1,000 of population is officially announced as having occurred in the death-registration area of the continental area of the United States in 1917.

The Census Bureau released the mortality statistics of 1917 for publication during the last week of June. It is shown that 1,068,932 deaths occurred in the death-registration area, which comprises twenty-seven states, the District of Columbia, and forty-three cities in nonregistration states, with a total estimated population of 75,000,000, or about 73 per cent of the estimated population of the United States.

Of these deaths, nearly one-third were due to three causes—heart diseases, pneumonia, and tuberculosis. Almost another one-third resulted from the following nine causes: Bright's disease and nephritis, apoplexy, cancer, diarrhea and enteritis, arterial diseases, influenza, diabetes, diphtheria, and bronchitis.

The deaths from heart diseases (organic diseases of the heart and endocarditis) numbered 115,337, or 153.2 per 100,000 population. The death rate from this cause shows a noticeable decrease as compared with 1916, when it was 159.4 per 100,000. There have been fluctuations from year to year, but in general there has been a marked increase since 1900, the earliest year for which the annual mortality statistics were published, when the rate for heart diseases was only 123.1 per 100,000.

Pneumonia (including bronchopneumonia) was responsible for 112,821 deaths, or 149.8 per 100,000. This rate, although much lower than that for 1900 (180.5) or for several succeeding years, is higher than that for any year during the period 1908-1916. The lowest recorded rate for pneumonia was 127 per 100,000 in 1914. The mortality from this disease has fluctuated considerably from year to year since 1900, the general tendency having been downward until 1911 and upward from 1914 to 1917.

Tuberculosis in its various forms caused 110,285 deaths, of which 97,047 were due to tuberculosis of the lungs. The death rate from all forms of tuberculosis was 146.4 per 100,000, and from tuberculosis of the lungs, 128.9. The rate from tuberculosis of all forms declined continuously from 200.7 per 100,000 in 1904 to 141.6 per 100,000 in 1916, the decrease amounting to nearly 30 per cent; but for 1917 an increase is shown. Until 1912 more deaths were due to tuberculosis than to any other single cause, but in that year and during the period 1914-1917 the mortality from tuberculosis was less than that from heart diseases, and in 1917 it fell below that from pneumonia.

Deaths due to external causes of all kinds—accidental, suicidal, and homicidal—numbered 81,953 in 1917, corresponding to a rate of 108.8 per 100,000 population. The greatest number of deaths charged to any one accidental cause—11,114, or 14.8 per 100,000—is shown for falls. The rate for this cause varies but slightly from year to year. Next to falls, the greatest number of accidental deaths—8,649, or 11.5 per 100,000—resulted from railroad accidents and injuries.

The following table shows, for the death-registration area in continental United States in 1917, the total number of deaths and the death rate, by leading causes, together with the percentage which each cause contributed to the total:

TABLE WITH MORTALITY STATISTICS FOR 1917

CAUSE	NUMBER	RATE PER 100,000 POPULATION	PER CENT OF TOTAL
Organic diseases of the heart.....	115,337	153.2	10.8
Pneumonia (all forms).....	112,821	149.8	10.5
Tuberculosis (all forms).....	110,285	146.4	10.3
Tuberculosis of the lungs.....	97,047	128.9	9.1
Tubercular meningitis	6,092	8.1	0.6
Other forms of tuberculosis.....	7,146	9.5	0.7
External causes.....	81,953	108.8	7.7
Accidental falls	11,114	14.8	1.0
Suicide	10,056	13.4	0.9
Railroad accidents and injuries	8,649	11.5	0.8
Burns (excluding those due to conflagrations)	6,830	9.1	0.6
Automobile accidents and injuries	6,724	8.9	0.6
Homicide	5,781	7.7	0.5
Accidental drowning	5,550	7.4	0.5
Accidental absorption of deleterious gases, except in conflagrations	3,375	4.5	0.3
Mine accidents and injuries.....	2,623	3.5	0.2
Injuries by vehicles other than railroad cars, street cars, and automobiles	2,326	3.1	0.2
Streetcar accidents and injuries	2,277	3.0	0.2
Machinery accidents and injuries	2,112	2.8	0.2
Effects of heat (other than burns)	1,964	2.6	0.2
Other external causes.....	12,572	16.7	1.2
Acute nephritis and Bright's disease	80,912	107.4	7.6
Cerebral hemorrhage (apoplexy).....	62,431	82.9	5.9
Cancer	61,452	81.6	5.8
Diarrhea and enteritis.....	59,504	79.0	5.6
Congenital deformity and malformations	56,973	75.7	5.3
Arterial diseases—atheroma, aneurism, etc.	19,055	25.3	1.8
Influenza	12,974	17.2	1.2
Diabetes	12,750	16.9	1.2
Diphtheria	12,453	16.5	1.1
Bronchitis	12,311	16.3	1.1
Measles	10,745	14.3	1.0
Typhoid fever	10,113	13.4	0.9
Appendicitis and typhilitis	9,429	12.5	0.9
Respiratory diseases other than pneumonia and bronchitis	9,238	12.3	0.9
Hernia and intestinal obstructions	8,677	11.5	0.8
Cirrhosis of the liver.....	8,569	11.4	0.8
Whooping cough	7,837	10.4	0.7
Puerperal affections other than puerperal septicemia	7,317	9.7	0.7
Meningitis	6,890	9.1	0.6
Puerperal septicemia	5,211	6.9	0.5
Rheumatism	4,456	5.9	0.4
Scarlet fever	3,141	4.2	0.3
Erysipelas	2,866	3.8	0.3
Malaria	2,387	3.2	0.2
All other defined causes.....	147,235	195.5	13.8
Unknown or ill-defined causes.....	13,610	18.1	1.3
All causes	1,068,932	1,419.4	100.0

Keppel Now Red Cross Director Abroad

Dr. Frederick Paul Keppel, formerly Dean of Columbia College of Columbia University, assumed the office of Director of Foreign Operations with the American Red Cross on July 1st, and will represent the Executive Committee abroad in the Red Cross in foreign countries. Dr. Keppel resigns as Third Assistant Secretary of War to join the Red Cross. During the war he has been in charge of all matters relating to the social and physical well-being and morale of the men in the army.

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

ECONOMIC PROGRESS OF MEDICINE

IT was, of course, just coincident, but nevertheless it seemed significant that the meeting of the American Medical Association overlapped the meetings of the American Academy of Medicine, the National Conference of Social Work and the American Federation of Labor. The juxtaposition of the discussions of medical science, social science, medico-social science, and labor problems served to emphasize to the forward-looking medical minds at Atlantic City how interdependent these subjects are. Even a hasty review of the programs indicates the close relationship. It is a happy sign of the times that many physicians attended some of these other conferences.

The presence of hundreds of the officers of the army medical corps, and officers of the navy, along with many distinguished officials in foreign uniforms, gave quite a military aspect to the Victory Meeting.

But, while this international aspect was evident on the Board Walk and in the meetings, it remained for some of the sectional meetings to disclose the fact that a new day has come for the science of medicine. Whereas the experiences arising from the war gave much zest to the papers presented and will continue to give new impetus to certain surgical and medical procedures, the outstanding fact remains that the medical mind has been definitely broadened and socialized by war problems. Physicians have come into close contact with the question of handling great groups of men; they have had to consider and handle masses of civilians not only abroad, but they have had to deal with those populations immediately surrounding our camps.

Perhaps 30 per cent of our active profession was thus forced to think in terms of the mass; to plan and carry out regulations designed to improve the health and morale of soldier and civilian—a gain in social thinking that is bound to leave its impress upon the public as well as the profession. This advantage should not be lost

sight of by those responsible for social progress. Fortunately, the day is past when medical publications can afford to neglect this broadened interest in public questions. It becomes rather their duty to foster this new spirit and thereby strengthen the influence of the profession in shaping the world's progress. Of this we may be sure, that the managing editors must either accept the challenge that the profession is not forward-looking in its programs and stimulate such leadership or resign all medico-social planning to the laity.

A hopeful instance of aggressive thinking was shown in the Section on Public Health and Preventive Medicine, a section which has shown remarkable growth in the past several years. Perhaps not the least reason for this progress has been the recent rather constant additions of subjects related to industrial hygiene.

It remained, however, for the papers presented under the topic of industrial medicine and surgery, this year assigned to the Miscellaneous Topics Section, to herald the modern spirit of medical thinking. The advancement toward social medicine in Belgium under war's stress was strikingly recited by Captain René Sand and will prove suggestive in the future for medical welfare. Mr. Little forcefully presented the economic pressure on business to help solve the health problems of the worker.

The discussion of the paper that pleaded for the introduction of courses for the teaching of public health and industrial medicine rightfully placed much of the responsibility for the economic progress of medicine and the upbuilding of national health upon the medical colleges.

The good attendance at the meetings, the active discussions, and the presence of many leaders of the profession gave assurance that the new specialty of industrial medicine has come to stay; that its practitioners are sensing their obligations not only to industry and the workers, but that they are determined that the profession at large shall play a more definite part in moulding public

opinion as regards legislative action, and which looks toward the improvement of public and personal health.

To judge from the discussions held big business is deeply interested and ready to pay for health extension work. It would be said indeed if the profession were found wanting in this regard and unprepared both by lack of trained men and medical organization to grasp the opportunities so presented of more widely preventing illness and suffering and more quickly and adequately rehabilitating the sick and injured. It is to be sin-

cerely hoped that the medical outposts so gained will be held, that the officers of the American Medical Association, as well as the officers of state and county medical societies, will give heed to the new note that has been struck; that the programs throughout this next year will continue the discussion of these subjects so fundamental to the future of the medical profession, and that out of the accumulated knowledge so gained some very definite recommendations be presented in formal papers before the entire profession at the next meeting of the Association.—EDITOR.

BRASS POISONING—SYMPTOMS AND DIAGNOSIS

BY R. P. ALBAUGH, M.D., FORMERLY DIRECTOR, DIVISION OF INDUSTRIAL HYGIENE, OHIO STATE DEPARTMENT OF HEALTH, COLUMBUS, OHIO*

BRASS is an alloy composed of copper and zinc. As these two metals combine in practically all proportions, many alloys are possible. Zinc being the cheaper of the two metals, its percentage is likely to be much increased until "cheap" yellow brass is formed. Brass poisoning is limited to those exposed to the inhalation of the whitish smoke and sublimation products from molten brass and zinc. Brass, in any condition of temperature short of that of the recent vaporous state of its components, produces no intoxication peculiar to itself. Toxic effects due to brass in the cold metallic state never occur. Authorities are rather generally agreed that zinc is responsible for brass chills, the syndrome having been produced in man by burning chemically pure zinc.

Symptoms.—Usually the symptoms appear several hours after exposure, and set in with a dry, parched throat, an irritating and unproductive cough, a feeling of constriction in the chest, lassitude, anorexia, often followed by nausea and vomiting. Within one to four hours chilly sensations are noticeable, while a dull headache develops. The chills rapidly increase into a distinct rigor, which may last from one-half to two or three hours. No amount of external heat seems to lessen the rigor. Muscular cramps and sharp joint pains usually accompany the chill. The symptoms end almost by crisis and are followed at once by a most profuse perspiration, while the prostration lasts for several hours longer. There may be fever or the temperature may be subnormal. The stage of perspiration is followed by a deep sleep from which the patient awakens with no apparent aftermath. However, a high rate of tuberculosis is observed among brass foundrymen. The dry,

parched respiratory membranes encourage alcoholism.

Diagnosis.—Formerly the affection was confused with malaria. Due to the closing of foundry windows in bad weather, the general breathing of fumes has induced so much illness as to cause a diagnosis of influenza to be made. Dust from alloys rich in copper often produce in workers, green-stained hair and a green tint to the perspiration, but these are without direct effects upon the health and should not be confused with brass poisoning, which is characterized by the malaria-like syndrome of chill.

Likewise, "brass itch," which is a rather common condition among brass polishers and which is due to the slight irritation of brass dust, combined with habits of uncleanness, should not be termed brass poisoning.

Prognosis.—Brass poisoning is characterized by the development of a form of temporary immunity, the absence of immediate serious or fatal consequences, and a lack of definite pathology. It is believed that the moulders consider the affection so commonplace that they do not usually go or send to the physician. For this reason physicians rarely have the opportunity of observing brass-founders' ague.

Treatment and Prevention.—There is no specific treatment for brass chills. Many observant workmen use mild emetics, claiming that the production of vomiting relieves the distressing symptoms at once. A good purge also seems beneficial. Many workmen seem to derive benefit from drinking hot milk to which pepper is added. Prevention depends on proper hygienic arrangements in foundries and smelters, regulation of the habits of workmen, and large, roomy quarters. All furnaces and furnace areas should be provided with hoods and exhausts to draw off escaping vapors.

*This article is the second of a series by Dr. Albaugh on the common industrial poisons.

NEW DEVELOPMENTS IN INDUSTRIAL MEDICINE AND ITS FUTURE

BY LIEUT. COL. HARRY E. MOCK, M.C., UNITED STATES ARMY*

WHEN the American Association of Industrial Physicians and Surgeons sprang into existence in 1916, at Detroit, it was recognized by its founders and its friends as a very husky youngster with high ideals and with a definite service to render to mankind. Even its most hopeful sponsors felt that several years must elapse before these ideals could possibly become an integral part of the national health program; but in four short years industrial medicine has emerged as one of the foremost specialties in our profession.

The newer conception of the supervision of the health of employees, the medical examination of applicants and of the old force, the prevention of disease and accidents by industrial hygiene and safety first, better medical and surgical treatment for the sick and injured, compensation and benefits, and the relation of this human maintenance work to other employee's service departments are developments of the last ten years. In 1916 only a few concerns had adopted this comprehensive system of health service, but since then hundreds of industries have installed a portion or all of the standards represented by the terms industrial medicine and surgery.

With the entrance of our Nation into the World War, and the year and a half of struggle necessary to meet the overwhelming emergency, great social and economic advances were made which otherwise would have required decades to accomplish. Industrial medicine, already established but little known outside its own ranks, was soon recognized as a force for preparedness. Its principles stood for industrial efficiency and maximum production, both so essential to a victorious ending of the war. Every industrial surgeon should feel justly proud of the part which his specialty played in maintaining the strength and efficiency of the great industrial army without whose support the military army would have been powerless.

A NATION OF LEADERS

Two things are necessary if this Nation, the model of a true Democracy for all the countries of the world, is to maintain its prestige, and its moral and economic leadership: it must conserve the health and energy of its 40,000,000 producers and providers; and it must add to the principle "all men are born equal," this further principle—"and must have the right to remain equal."

To conserve the Nation's man-power there must be a practical application of the scientific developments in medicine and all other branches of knowledge able to contribute to the conserving of human life.

industrial medicine the national recognition which it has finally attained.

The history of its part in the national preparedness program is a history of the new developments in industrial medicine, and to-day this association stands upon the threshhold of a great future, provided we continue to serve unselfishly the great masses, those who must produce and provide.

Prior to 1917 the outstanding milestones in industrial medicine were:

1. The installation of qualified medical staffs in several of the largest representative industries in the country.
2. The establishing of visiting nurses services.
3. The introduction of medical examinations of employees, naturally followed by thorough examination of applicants for work.
4. The creation of employee's service departments, also known as sociological or welfare departments, of which industrial medicine is a closely correlated service.
5. The organization of the National Safety Council with its health betterment section and the recognition of the industrial surgeon's part in accident prevention.
6. The organization of mutual benefit associations and, later, the enactment of employees' compensation laws in thirty-eight

The work of those who were forced to remain on the job in order to maintain the health of the working forces in the essential industries; of those who contributed to the education of the public by their writings and addresses; and of those who carried the principles of this service into the work of the Army, the Navy, the other Governmental health agencies, and into the Red Cross—all have been responsible in giving in-

*Address of the President of the American Association of Industrial Physicians and Surgeons delivered before the Fourth Annual Convention of that Association at Atlantic City, N. J., June, 1919. Authority to publish granted by the Surgeon General of the Army, June 6, 1919.

- states of the Union, in both of which advances industrial medicine had a very definite influence.
7. The enactment of laws, still very inadequate, for the discovery of, and in some cases the prevention of, occupational diseases.
 8. The creation of medical consultants for a few state departments of industry and labor. The most notable example is furnished by the states of Ohio, California, and Pennsylvania. The quarterly conferences of industrial surgeons in the latter state are famous, and have been responsible for great advances.
 9. The symposiums on industrial medicine in the American Medical Association, first held in 1915, and in many state medical associations, and, finally, the creation of a section on Industrial Hygiene in the American Public Health Association.
 10. The organization of the Conference Board of Physicians in Industrial Practice, and the contributions of this group to the general subject.
 11. The organization of the American Association of Industrial Physicians and Surgeons and the influence of this Association in elevating the standards of health service in industry.
 12. The establishment of occupational disease clinics in a few medical schools, and in at least two schools comprehensive courses on industrial medicine and surgery.
 13. Contributions of industrial surgeons to the study and prevention of tuberculosis, of cancer, of venereal diseases, of infections, and the study of health insurance and other great social and economic problems related to industry.

Medicine an Aid To War Production

In 1917 when this Nation sprang to arms the American Association of Industrial Physicians and Surgeons sent a resolution to the President setting forth the importance of supervising the health of the industrial army and offering the services of its members to the great cause. Letters and addresses from many sources were sent to various government agencies emphasizing the value of industrial medicine as a means of aiding in maximum production. As a result, in October, 1917, the Medical Section of the Council of National Defense called a conference of railway surgeons and industrial surgeons to discuss this problem. A committee known as the Industrial

Surgeons Committee of the Medical Section of the Council of National Defense was the direct outgrowth of this conference.

Federal Action

Already in the Labor Section of the Council of National Defense several committees dealing with various aspects of industrial hygiene had been appointed and had made extensive studies.

The reports of these committees, combined with the comprehensive program of the Industrial Surgeons Committee for maintaining the health of the working forces in industry, influenced several large concerns, and especially the mammoth governmental industries, to install many of the recommended standards.

Finally, in July, 1918, the President issued an executive order placing the various public health measures, except those of the Army and Navy, under the control of the United States Public Health Service. This bureau adopted the program of the Industrial Surgeons Committee, and extended its industrial hygiene section to incorporate this broader field.

The survey of the medical departments of hundreds of industries of the country by this section of the United States Public Health Service, the suggestions for improvement, the circulars of propaganda urging the installation of industrial medicine in essential industries, the efforts to have medical schools introduce courses on this subject, and the cooperation with the Department of Labor to better the relationship between employers and the employed represent one of the great advances in this specialty.

Before the war was over the United States Ship Building Corporation, the Ordnance Department of the Army, the Government arsenals and munition plants, the navy yards, the United States Employees Compensation Bureau, and the Railroad Administration had adopted many of the principles of industrial medicine. The War Department organized a medical staff, visiting nurses, and a welfare department for the thousands of civilian workers assembled in Washington. Later the United States Public Health Service took charge of many of these activities.

In the women's division of the Department of Labor a committee of Hazardous Occupations for Women was organized. Industrial physicians and surgeons were members of this committee although they were representing the United States Army and the United States Public Health Service. As a result of the work of this committee many standards for the prevention of disease and accidents to women workers were made, and several industries were influenced to adopt them.

In the army industrial medicine also played its role. The plans for the physical reconstruction and re-training of disabled soldiers were based largely upon the practical work along these lines which had already been done for disabled employees in certain industries. In addition to this our country profited by the experiences of other nations in reclaiming their disabled fighters. Hand in hand with our efforts to rehabilitate the disabled soldiers there has been maintained a nation-wide publicity campaign ever pointing to the need of reclaiming the civilian disabled. To-day it is safe to say that one of the newest developments in the field of industrial medicine is the awakened conscience on the part of our people to the great human wastage in industry, the need of preventing this prodigality, and the necessity of reclaiming those who become handicapped through disease or accidents. Already two states, New Jersey and Rhode Island, have enacted laws providing for proper therapeutic measures for the disabled from industry, re-training for remunerative occupations when necessary, and the proper employment of the handicapped. Six other states are considering similar laws and there is a rehabilitation bill now before Congress.

Again in the army the establishment of limited service and of Development Battalions was based chiefly upon one of the fundamental principles of industrial medicine, namely, the placement of men at occupations according to their physical qualifications. Until June, 1918, soldiers who were found by their physical examinations, at the time of reaching the camps, to have defects, or who developed defects during their training which unfitted them for full military service, were immediately discharged. A survey made in December, 1917, revealed the fact that there were tens of thousands of able-bodied soldiers, capable to go across and fight, who were on duty as clerks, typists, orderlies, fire guardsmen, and many other noncombative positions. Tens of thousands of the men who were being discharged because of defects unfitting them for full combat service were perfectly fit to be placed at these selected duties, while great numbers of the others could be developed or reclaimed for selected or even full military service. Finally this truth was driven home, and limited or selected service and development battalions for the reclamation of these defectives became one of the great man-power measures of the army. In six weeks twelve regiments of able-bodied soldiers were freed from non-combative service, replaced by limited service men, and went overseas to fight. In this work the medical officers and personnel officers, who correspond to employment managers, worked in close

unison. The men were picked for duty according to physical qualifications plus occupational qualifications. To-day these personnel officers are scattered throughout the industries of the country. They have learned one of the great lessons of industrial medicine and are missionaries carrying the need of the application of this principle to the great industrial army.

If the war had continued industrial medicine and the allied human engineering activities would have proved conclusively that these principles represent the greatest movement for conserving and developing the human resources yet inaugurated in the body politic. As it was, the war lasted sufficiently long to demonstrate the value of human maintenance in industry and to place it upon a national plane.

State Action

In several of the state governments during the last two years there has likewise been a tendency to pay greater attention to the health of the working people. One notable advancement in a few states has been the appointment of qualified surgeons as disinterested consultants to the state compensation board. This has resulted in a demand on the part of these commissions that employers furnish better medical and surgical care to employees. Insurance companies have been aroused to the false economy of employing cheap surgical attendance for injured workers. A fairer and more equitable settlement of claims has been noted. This has caused considerable scrutiny of the various state acts, and there is a growing feeling that many compensation acts are inadequate, that a standardization of employees' compensation laws is an urgent need if justice is to be rendered to the injured and to victims of occupational disease.

In a few states, notably Pennsylvania, Ohio, California, and Massachusetts, a closer relationship has been developed between the State Department of Health and the Department of Industry and Labor, resulting in the advancement of industrial medicine as a public health measure. This is causing a closer cooperation between the medical work in industries and the municipal public health departments. It is apparent that within a very short time industrial hygiene will be a definite function of public health.

Industrial health departments and two or three night clinics, made available for those who must work have demonstrated that many incipient diseases can be discovered early, while still curable, if facilities are afforded the working people to obtain proper diagnostic and medical care. As a result, pay clinics and centers for group diagnosis and treatment are beginning to spring up in in-

dustrial centers. Men trained in industrial medicine and surgery will find fruitful fields of endeavor in these pay clinics of the future. Instead of the working man being forced to consult, after working hours, some physician, unqualified by training or equipment properly to diagnose his case, these centers will permit him to secure at a reasonable cost for himself and his family the same advantages of special diagnosis and care now afforded only the rich, who pay excessive prices, or the poor, who receive free treatment.

Medical Schools

At least eight medical schools have embodied some branch of industrial medicine in their curricula. During the last year there has been a marked advancement on the part of at least two of these schools, and very comprehensive courses are now being prepared for the fall term. Laboratories are being installed for the scientific study of occupational diseases; methods of prevention of occupational diseases and accidents, and epidemiology in industry will be taught; special courses on industrial surgery and the medico-legal aspects of accident surgery will be presented by experienced industrial surgeons; the ramifications of an industrial health department and its relationship to other employees service departments will be included in these courses. Physicians and surgeons with long experience in the industrial field are being appointed to teach this new specialty. Several large industries have agreed to open their medical departments for practical demonstrations to small groups of students.

This newest development in industrial medicine and surgery bids fair to become the most momentous advance yet made. Instead of medical students being graduated with only the individualistic idea of the practice of medicine they will go forth with a vision of group medicine—the possibilities of prevention as applied to a large group—and the great economic and social aspects of our profession.

Publicity

Several publications have given considerable space to articles and abstracts dealing with various subjects related to this field. The reports of the conferences of Industrial Surgeons in Pennsylvania and the bulletins of our own association have served as excellent mediums for publicity; but within the last month another great advance has been made by the appearance of two journals devoted to this field of medicine. The *Journal of Industrial Hygiene* is exclusively a publication of articles dealing with industrial medicine and

surgery. Its scope is to be international, dealing with advances in this specialty in Europe as well as in America. MODERN MEDICINE is the name of the other journal. It covers the entire field of medico-sociology, and devotes a section of the magazine to industrial medicine. Both of these magazines will henceforth offer the best means of advancing the principles of our association.

Allied Associations

Six great national organizations have developed within the last eight years which deal with some phase of subject of the personnel in industry. These are the National Safety Council, the National Association of Industrial Engineers, the Western Efficiency Society, the Employment Managers Association, the National Association of Corporation Schools, and our own Association of Industrial Physicians and Surgeons. Other organizations deal with problems in which we are greatly interested, but community of interests should draw these six associations very closely together. Their principles aim chiefly at the problems of human maintenance in industry.

For years the National Safety Council has given great prominence to the subject of industrial medicine. The same is true of the National Association of Corporation Schools. It is noteworthy that the other three organizations have included papers by industrial physicians on their annual programs during the last two years.

This development has lead to the following suggestion: that because of the closely related interests of these organizations in the questions of human engineering, efficiency, proper placement, and the conservation of the health and working ability of employees, arrangements should be made whereby there can be established an interchange of ideas between these groups and a closer coordination in their efforts. Each succeeding program of these organizations should be a constructive one covering all phases of personnel work in industry and setting forth a line of endeavor for each special group during the ensuing year. Representatives of industry, labor, and the government should be invited as guests to attend the various meetings and participate in the discussions. Such coordinated effort would cause great progress in human engineering.

Red Cross

The future activities of the American Red Cross are now being discussed and the national and international programs of this most powerful organization are being prepared. It has been conclusively determined that this great war machine shall not disintegrate, that its service is not

limited to periods of calamity, but that in the future it must serve humanity by becoming a power in the field of prevention. Doctor Farrand, the new director of the American Red Cross, recognizes the wonderful opportunity for the prevention of disease and accidents furnished by the general adoption of the principles of industrial medicine. He is anxious to receive help and advice from this group so that the final program of the American Red Cross may include a wise policy in this direction. It is suggested, therefore, that this Association appoint a committee of three members, to be known as the Red Cross Committee of the American Association of Industrial Physicians and Surgeons. The function of this committee will be to discuss with the council of the American Red Cross the scope of its plans, and outline wherein the Red Cross can help in the field of industrial medicine, and wherein our Association can further their work.

The National Health Council

Three weeks ago there met in New York the presidents or representatives of sixteen national health associations. These various groups represented the fields of public health, tuberculosis, child welfare, child labor, visiting nursing, prevention of cancer, prevention of accidents, and industrial medicine and surgery. It was felt by all present that closer coordination must be developed between the great number of associations existing in this country and working in many cases for the same general results. To accomplish this it was decided that a national council consisting of a representative of each recognized national health association should be formed to work out a program of coordination between these groups. This movement marks one of the most forward steps in public health yet made in this country. In it may be seen the forerunner of a national health administration. It is indeed gratifying for our Association to be represented in such a council.

Education

It is necessary for the members of this Association to contribute both scientific and practical articles on the subject of industrial medicine to a greater extent than has been done in the past. While the growth of this specialty has been unusually rapid, yet its principles and standards are far from being universally adopted by all industries. There is still a preponderance of the old methods which beget human waste and human suffering. There are still many employers who, refusing to recognize the human appeal of this work, cannot see the dollar and cent returns of a comprehensive human maintenance service.

Therefore, as experience in this work develops, and its practicability is more and more demonstrated, members of this Association should write and publish the arguments which will serve to educate both industry and labor to the great value of applied industrial medicine. Many of the medical profession need this propaganda likewise.

The time has come when this Association should give careful consideration to this question of publicity. A publicity committee, therefore, is suggested.

Teaching

With the tendency of medical colleges to include courses on industrial medicine another future activity is offered to our Association. A committee should be appointed to stimulate the teaching of this subject in medical colleges, to scrutinize existing courses and endeavor to make them comprehensive, and to prepare an outline of the subjects which should be included under this term industrial medicine to be submitted to all medical colleges.

Legislation

At every session of Congress, and of the various state legislatures, bills are submitted which deal directly with problems related to industrial medicine. Some of these should have the strongest support, both as individuals and as an association, while others are pernicious and need opposition. In order to meet this situation, a legislative committee should be appointed.

Constructive Program

The fact that a few farsighted industrial concerns throughout the country have instituted programs for conserving the health of their employees, preventing accidents, bettering working and living conditions, providing a better wage, and even, in some cases, a participation in the profits of the business, bear striking testimony to the existence of faulty labor conditions. The re-establishment of human relationship in these concerns has resulted in loyalty and contentment among their working force, a recognition of the community of interest between the employers and the employees, and an increase in production. Some of the greatest capitalists of to-day testify that these betterment services for their employees pay big dividends.

The adoption of this policy by all industries will result in a conservation of the man-power of the Nation, an equalization of the privileges of democracy for all our people, and will tend to cure much of the increasing labor unrest directly due to selfishness on the part of and disagreement between capital and labor.

It is time for this Association to adopt a con-

structive program wherein its energies will be directed toward real service to mankind. The day is past when such an association as this can be content with an annual meeting devoted to the reading of papers. It is hoped, therefore, that the directors of this Association will be instructed to prepare immediately such a constructive program, and to arrange a plan whereby it can be inaugurated at once.

Conclusion

From the gloom and sacrifices of the recent world struggle our people have awakened to many conditions long existing in their midst, tolerated without effort at correction except when slowly accumulating public opinion has demanded certain changes.

As a result of this awakening it is realized as never before that the nations have been very negligent in conserving their man power, in utilizing their human forces most effectively, and in granting to all their people the equal right to live in peace and contentment and to share equitably in the fruits of their labor.

Greatest Asset of Nation Is Its Man Power

The United States to-day is recognized as the most powerful economic force in the world. Further, for all other countries it is the model of a true democracy. If it is to maintain these enviable positions two things are necessary: (1) It must conserve the health and energy of its 40,000,000 producers and providers; (2) it must add to the principle "all men are born equal" this further principle—and must have the right to remain equal.

To accomplish this end there must be a practical application of the scientific developments in medicine, education, industrial engineering, economics, and sociology, and all other branches able to contribute to the conserving of human life and to the development of human happiness.

No laws or governmental regulations will make possible these new conditions—the adoption of this new principle of equality—until the people desire and demand them. To await legislation to correct conditions belongs to the pre-war period.

To-day the community of interest between capital and labor, the spirit of fair play and justice which is manifested by many broad-visioned business men and many thoughtful labor leaders, and the thousands of our people who have become imbued with the ideal of unselfish service as the practical expression of their patriotism—all these furnish a force for the correction of present conditions more powerful than any legislative force could ever be.

The present moment marks a crisis in the history of our Nation. Either the old conditions exemplified by selfishness in every walk of life, both governmental and private, will continue to exist, thereby perpetuating labor unrest, anarchy, and war, or the new conditions, fostered by justice and service, will now replace the old, resulting in an equalization of the rights of men, and a real guarantee of future peace.

The future of this Association will be glorious, provided it measures up to the great opportunities unfolding in this reconstruction period.

Railway Surgeons Elect Chief

Dr. Clarence W. Hopkins, of Chicago, is the choice of the Association of American Railway Chief Surgeons for president of the organization. The following officers have been chosen for the ensuing year: Dr. Duncan Eve, Nashville, Tenn., vice president; Dr. Louis J. Mitchell, Chicago, secretary and treasurer.

REST PERIODS FOR INDUSTRIAL WORKERS

The necessity for rest periods in any prolonged or monotonous work has long been recognized. The objection to such periods on the grounds of loss of time and disorganization of discipline is made nil by the studies reported in Research Report No. 13 of the National Industrial Conference Board, January, 1919, which show that the aggregate of voluntary and irregular rest periods taken by employees is greater than periods designed for the special needs of the workers, while fatigue curves show such degree of renewed interest and activity after recuperation as actually increases the output. Man is not a machine and, when his mechanism slows down from fatigue he must be permitted rest and recreation, and oxygen to burn up his acid waste products if he is not finally to land in the human scrapheap of industry.

This report tabulates the findings in 388 establishments. The conclusions are based upon the reports of 104 concerns allowing regular rest periods. Of these only 82 gave definite information as to whether rest periods are granted only to selected workers and of these only 21 allowed rest periods to all employees. The consensus of opinion indicates that the output is not diminished by rest periods, but is often increased. Certain inaccuracies of work are eliminated. The workers feel better at the end of the day. Owing to collective psychophysical habits, conditioned by practice, the greatest amount is done the last part of the day, and employees so favored show less discontent than obtains among others.

There appears to be a tendency toward the organization of such rest periods looking toward specially designed corrective measures to induce relaxation and rest. Some light refreshment at such intervals is beneficial.

Fixed rest periods for workers at intervals within the work-hour are the exception in American establishments. Their desirability and their practical utility are largely determined by the particular type of work, the composition of the working force, the length of the working spell, and the special operating conditions in the individual establishment. No study has been made in this connection in relation to frequency of accidents and no relation has been noted to labor turnover. Managers are inclined to accept the rest period with growing appreciation.

HEALTH SUPERVISION FOR STOCKYARDS WORKERS AT ARMOUR AND COMPANY

AN industrial physician in charge of the medical organization and medical personnel of a large industry stands in the same relation to the employees in that industry as the public health officer at the head of a city or state health department toward the public. The employees are the public of the industrial physician. Their health,

comfort, and safety; their places of work and residence; the forms of employment and occupations in which they engage, are his concern. He is the health officer of their community.

The administrative duties of the physician or surgeon in industry closely parallel those of the municipal health officer, only being varied in the adapting of measures for health and sanitation to working groups instead of the general public. The contact which the industrial physician has with his public is even more direct than the municipal health officer's relationship with the individual citizens of his community.

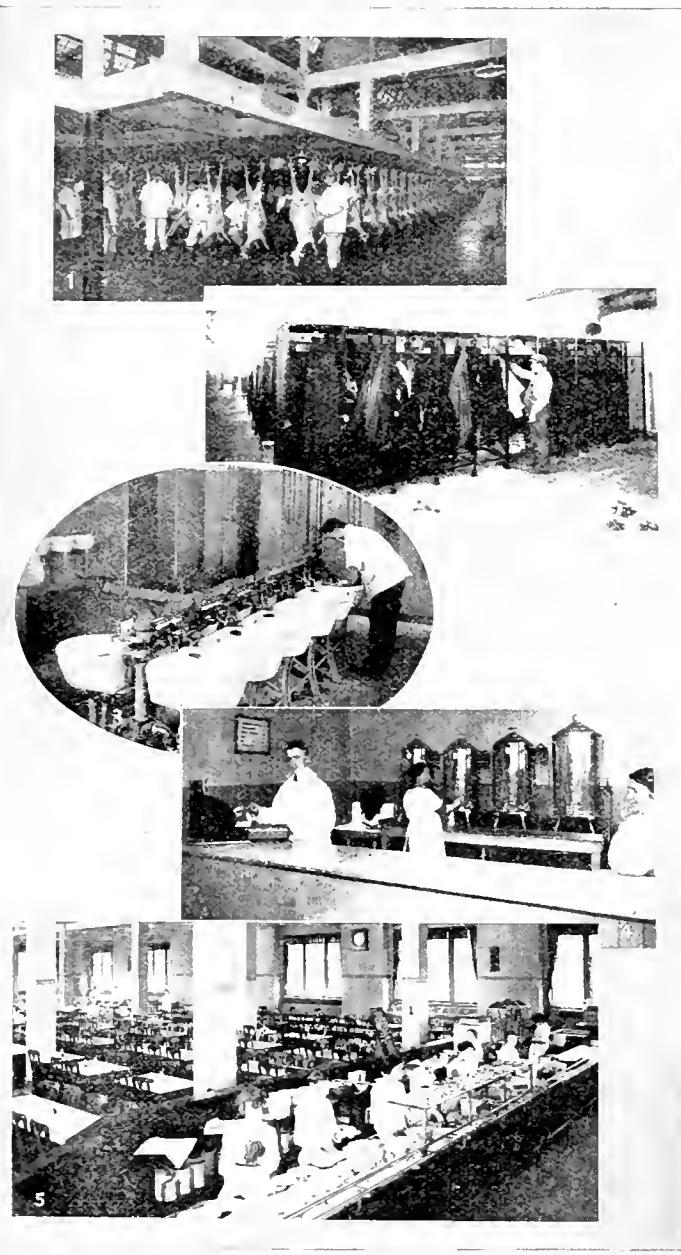
The working population in the Chicago stockyards is a typical American industrial community. Like a city divided into wards and precincts, the stockyards community has its subdivisions. One of these, with which the present study of health supervision will deal, is Armour and Company, the employers of 60,000 men and women in Chicago and elsewhere.

Getting a Job in Stockyards

When a new comer moves to a city, or to another neighborhood within his own city, he has no idea of consulting the city health officer, nor does that official think of the new resident and his family, or others of his kind, except in the mass. Herein is the point of divergence in the methods of public health departments and industrial health supervisors. And here is the difference in the practice and routine of industrial health supervision and public health administration. The advantage seems to lie on the side of the industrial physician.

The applicant for a position with Armour and Company must satisfy the examining physician in the medical office that he is physically sound and that his health and personal cleanliness are such as to warrant his being admitted to an organization which handles meat and foodstuffs for the tables of millions of people.

Like other large employers, Armour and Company has developed an employment management system which operates hand in hand with the medical department of the organization. The applicant answers the usual questions, fills out various blanks to



Quite in contrast with some of the ill-kept structures that sprung up in the stockyards district of Chicago during the early days of the packing houses, the modern buildings of Armour and Company and other large firms represent the best work of the architects who design the big food plants. The illustrations show (1) the well-ventilated, well-lighted sheep-killing plant of the Armour establishment; (2) a typical men's locker room; (3) a wash room; (4) a coffee booth and attendants in white aprons; and (5) the employee's cafeteria.

show his qualifications, and is given a classification. His assignment to work is not approved, however, until he has been given a careful physical examination to determine if he has any physical impairment which would be detrimental to him or to the company in the performance of the work in question.

For the examination of women applicants there is maintained a staff of experienced matrons and women physicians. Especial care is taken to assure the comfort and satisfaction of women and girls seeking employment in the Armour establishment, particularly if the ways of business are unfamiliar to the applicant.

It has been the aim of Armour and Company executives to avoid the tendency of department routine to become institutionalized in the methods and attitude of dealing with employees. Health supervision in the big packinghouse therefore has the double aim of utility and personal welfare.

Suitable arrangements in the design and construction of the modern structures which house the Armour plant and offices make it easy for workmen to acquire orderly habits about their work and about their persons. The departments in which the animals arrive, where they are prepared for the killing-room, and the buildings in which the slaughter is done, are scientifically ventilated, drained, and lighted. Adjacent to the work rooms are locker rooms, wash rooms, toilets, and shower baths, where employees can bathe, wash, and change their clothing.

The Homeward Bound Workman

The workman on his way home from the Armour plant is not garbed in dirty overalls, his brow is not marked with dirt and perspiration, and he does not look tired. He is washed clean, his clothes are neat, and he reaches home refreshed and alert.

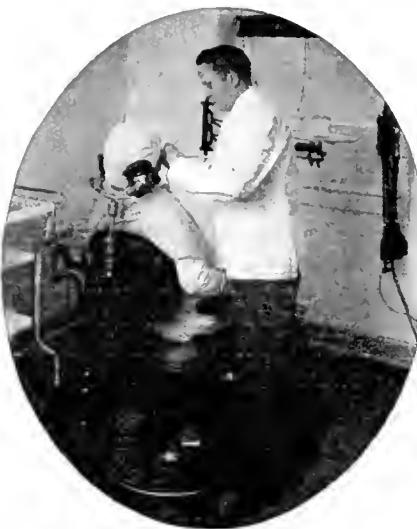
Scattered through the various buildings and floors are lunch rooms where wholesome food is served at small cost. The lunch rooms do not close up during the morning or afternoon, as in some industrial plants. Instead, women and girls, and sometimes the men, are urged to visit the lunchroom to get a cup of coffee or a sandwich when complaints are made of headache to nurses

from the medical or welfare department. A sandwich is often better than a headache powder.

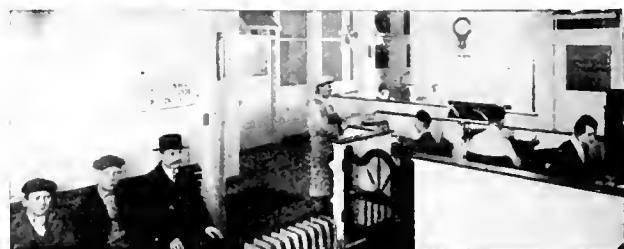
The nurses visit all departments at stated intervals, and are always on the lookout for the minor complaints and ailments which warn of something wrong. Nurses furnish tickets for the purchase of food, coffee, or bouillon, if they think such a treatment advisable.

These visiting nurses work under the direction of the Visiting Nurse Association of Chicago. Four nurses devote their entire time to visiting the women employees in the plant and to calling upon them at their homes. The same nurses assist in the general health supervision of the Armour community by giving noon-day talks. In the lunch rooms, rest rooms, or dressing rooms, groups assemble to hear these talks. The subjects vary with the interests of the listeners.

The medical provision for employees includes a large, fully-equipped, centrally-located hospital, with first aid and emergency rooms. Every Armour plant outside of Chicago is equipped with



Dental dispensary in the Welfare Department of the Chicago plant.



Waiting room at Armour hospital.

an emergency hospital also. The Chicago hospital employs six full-time physicians and a consulting surgeon.

Two examination rooms—one for women and one for men—and separate waiting rooms for men and women, are provided. Medical advice



An operating room in the emergency hospital for stockyards workers at the Armour plant.

and treatment are furnished without cost to the employee in all cases, including full treatment of whatever kind the illness requires.

Examinations are made under the direct supervision of the pathologist. The standard appliances and equipment of the modern hospital are available. In conjunction with the care and treatment of cases, instruction is given in matters of health and personal hygiene.

A dental infirmary is one of the indispensable features of the Armour program for health conservation. As part of the physical examination which an applicant for a position undergoes at the time of entering the organization, his teeth are examined and advice given as to the correc-

tion of any defect that may exist. The report of the dental department for the first six months of work shows that 840 men and women employees received dental treatment. Twenty-four nationalities were represented by those who availed themselves of the dental service.

The dentist does not attempt operative work, but seeks to impress upon employees the reasons why sound teeth and good health are closely related. He may in some cases recommend that a patient be sent to a practising dentist outside for treatment at the expense of the company, if an employee is not financially able to bear the cost himself.

Health of Office Workers

The problem of health for those engaged in work of a sedentary nature has been separately studied and a system of corrective health supervision for desk workers is the result. Yearly physical examinations are made of all office workers. A gymnasium is provided for their use. If the examination reveals a physical defect which can be overcome by proper habits, exercise, or special treatment, the employee is guided in the way best suited to overcome the trouble. Facilities are at hand for thermal, electric, heat, and massage treatments for those having need of them.

In the same way special attention is given to the comfort and health of women office workers. The welfare department maintains a rest room and works in cooperation with the visiting nurses.

Closely related to the system of health supervision are the numerous activities in athletics, and the social features of community life in the Armour stockyards organization. Educational facilities as well are combined with the other specialties of employees' service.

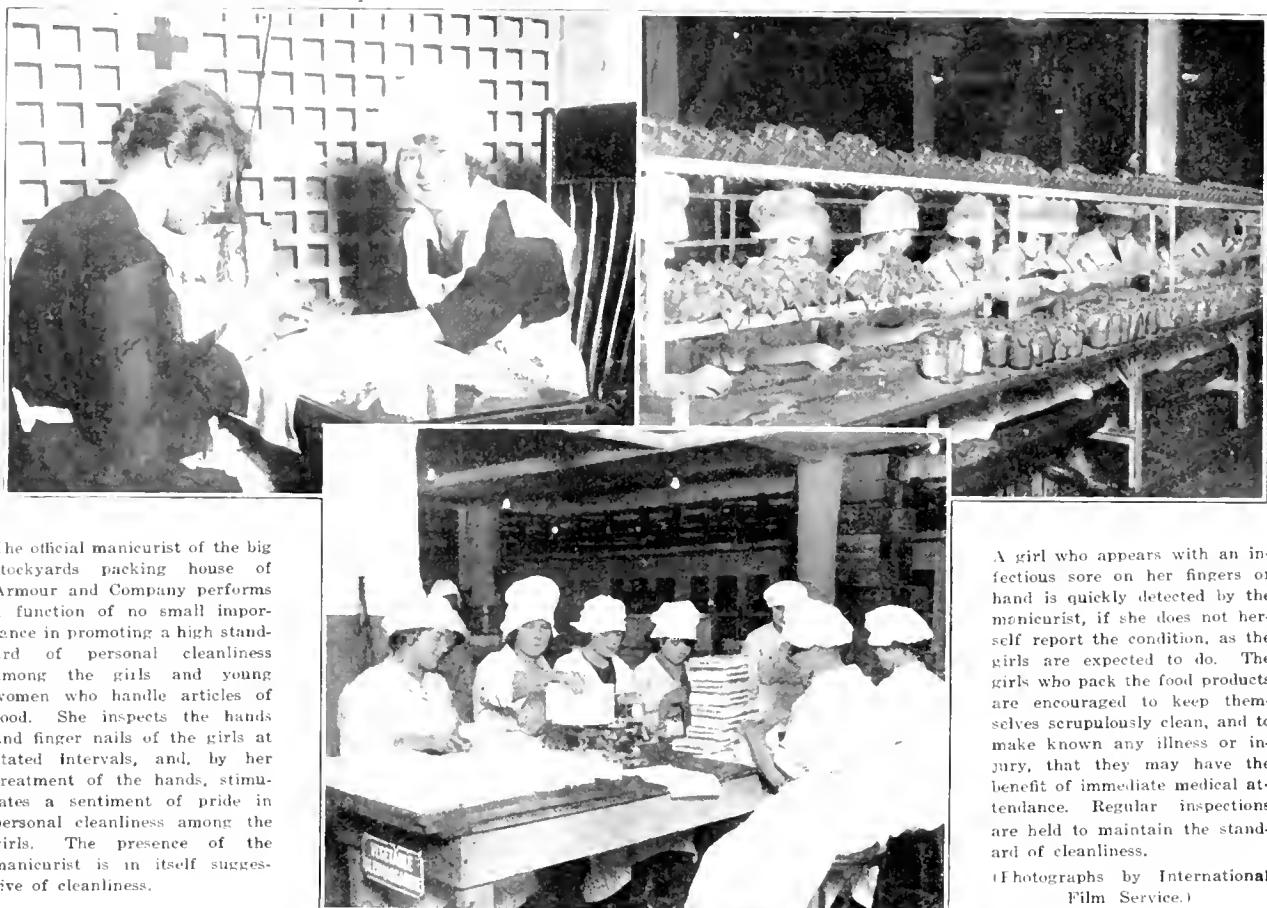
One of the most practical and interesting phases of educational work consists of the English class for foreign born workmen. This was opened several weeks ago in the employment office, by the company, in co-operation with the Chicago Board of Education.

The study of English is closely related to the safety and health of the workers. Many of the lessons relate to such subjects as the eyes, feet and other important members and urge the workers to take such precautions as are necessary in a large industrial establishment.

The classes have an enrollment of 400 students who spend an hour each several times



The gymnasium of Armour and Company for stockyards workers and a few of the facilities it provides: (1) Office employees go a-swimming. (2) A gymnasium class. (3) The Armour Gymnasium. (4) Examination by expert in drugless methods of treatment. (5) Physiotherapy for employees.



The official manicurist of the big stockyards packing house of Armour and Company performs a function of no small importance in promoting a high standard of personal cleanliness among the girls and young women who handle articles of food. She inspects the hands and finger nails of the girls at stated intervals, and, by her treatment of the hands, stimulates a sentiment of pride in personal cleanliness among the girls. The presence of the manicurist is in itself suggestive of cleanliness.

A girl who appears with an infectious sore on her fingers or hand is quickly detected by the manicurist, if she does not herself report the condition, as the girls are expected to do. The girls who pack the food products are encouraged to keep themselves scrupulously clean, and to make known any illness or injury, that they may have the benefit of immediate medical attendance. Regular inspections are held to maintain the standard of cleanliness.

(Photographs by International Film Service.)

a week under the instruction of an earnest teacher who understands seven different languages but confines his teaching strictly to English. There are fifty-two different nationalities represented at the Chicago plant and while they are not all included in the English class a large number are, Poles predominating.

Taken all together, the Armour community and public might be viewed as the cross section of any modern, American industry. Not least in the picture is the public health officer of the Armour plant—the physician of industry and his staff of assistants and nurses. Their function in supervising the health of employees and the sanitation of working places bears the same relationship to employment management as that of the commercial or industrial engineer in industrial management.

EDUCATIONAL NEEDS OF THE MEDICAL PROFESSION

"One lesson of the war which stands out with great distinctness is the necessity for the American Medical Association to continue its unceasing struggle to raise the standards of medical education in this country. Such are the increasing demands made on the medical profession that the

young men entering it today must realize that the broad and excellent education obtainable is none too good. It is not asking too much to require that all medical schools which are permitted to continue should soon be raised to the A Class.

There is another urgent educational need in this country that should be taken up immediately: that is, increase in the postgraduate opportunities for medical study. The opportunities that are presented in this country are practically undeveloped. It is for the profession to develop them, and every member of the Medical Corps of the army should be given an opportunity to avail himself, for a certain number of weeks each year, of the chance to study some branch of medicine or surgery at some medical center—not required to do it at his own expense, but detailed by the government to take up, for a definite number of weeks, his chosen branch of study. Physicians acquire their knowledge best by daily contact with opportunities which broaden their experiences. The opportunity to do this at short intervals, rather than at intervals of two, three or five years, would produce better results."—Alexander Lambert, presidential address, seventeenth annual session, American Medical Association, Atlantic City, N. J., June, 1919.

EMPLOYMENT MANAGEMENT AND INDUSTRIAL MEDICINE

BY OTTO P. GEIER, M.D., DIRECTOR EMPLOYEES' SERVICE DEPARTMENT, CINCINNATI MILLING MACHINE COMPANY, CINCINNATI, OHIO*

WHEN the great ledger account of the world war is closed; when the dead of all nations have been totalled; when their widows and orphaned children have been cared for; when the injured, the maimed, the blind, the helpless have been given a proper place in community life; when the proper recognition has been given those millions who dared to risk their lives that humanity's rights might be preserved; when the shackling burdens of destructive warfare have been distributed to the best ability of finite minds; when peace again shall reign, and free interchange of commerce begin to play,—the great outstanding fact from this world inventory will be that the appreciable valuation placed on human life has increased.

By curious anomaly that which has been held so cheap in war becomes so dear in the peace that follows. Then great masses of men were literally thrown out as targets for machine guns and cannon; now with infinite patience we are struggling to rehabilitate the wounded man so that he may again find an independent place for himself in industry and society. The great tidal emotions engendered by the war have swept us loose from all traditional anchorage; the chains of narrow, selfish, class feeling have been broken; our ships of state are afloat on the rough, uncharted social seas. Is wise pilotage at hand, or must we helplessly drift?

Life No Longer Cheap

These are mighty questions. Their answer in a democracy cannot be passed on to the other fellow—democracy makes this a personal and individual matter.

This very Association at this moment, unconscious though it may be of this fact, has a tremendous responsibility in finding the proper solution to problems which will go far toward marking that day when real justice to all men will abound.

BENEFITS FOURFOLD FROM AN INDUSTRIAL HEALTH CAMPAIGN

If employment managers wish to play a part in the most significant of world movements, they must have real understanding of the trend of industrial medicine.

The shameless waste and losses in industry caused from unnecessary illness, injuries, death, and invalidity are the issues that should lead to a great "health first" campaign, that in its infancy promises fourfold the results obtained from the "safety first" movement. The industrial health campaign is positive, productive, constructive.

For until the more fortunate, the rich and the near rich, shall approach and better understand the less fortunate, the poor and near poor, there is great danger ahead for all. Unless the strong, the intelligent, the tolerant, the sane, the sober-minded, whether rich or poor, bestir themselves so that social and economic justice may prevail, we may be sure that the unwise, the intolerant, the emotional, will produce a chaos in their ef-

forts to remove injustice. If the first group decline to bother themselves, they may now see at least how the second group solved the subject in Russia. If we are to find prompt answer to these vexing questions, we will have to stop folding our hands and sitting about waiting for statecraft to solve them. We must realize that these problems are personal and individual. If each employer will do unto his employees as he would like to be done with, the I. W. W. and the Bolshevik will vanish from our land.

Must Regain the Personal Touch

While it is advisable to think in terms of the mass, it is even more important to act in terms of the individual. The great industrial development of the last quarter century has made that increasingly difficult, but until industry intelligently, frankly, wisely faces that difficulty of mass estrangement and regains the personal touch and relationship, little progress will be made in these present social maladjustments.

Now what application have these principles just enunciated, to the employment manager and the industrial physician, whose joint responsibilities toward industrial relations we are to consider? Do these principles not suggest, at the outset, that the industrial relations department has a responsibility way beyond the confines of the particular industry which it serves? Do they not suggest that the net results possible of attainment from the combined efforts of numerous such industrial relations departments might weigh

*A paper read at Cleveland, Ohio, before the annual convention of the National Association of Employment Managers.

heavily in determining a better understanding between labor and capital, employer and employed, and thus hasten the day and contribute mightily to the solution of these most difficult social and economic problems? War has emphasized in no uncertain way the value of employment management. To many it first disclosed the value of the industrial physician in increased production through medical supervision. Whether the relatively new specialty, industrial medicine, and employment management will justify themselves in peace times will depend not primarily upon how these two affect production, but in the last analysis upon how nearly these two representatives of industrial relations have caught the spirit of the new day in industry. He indeed is unfortunate and narrow who still believes he serves the employer who does not first serve the employee.

Even more stupid is he who believes he can advance his own interests with the employer before he has laboriously and studiously advanced the interests of the employed. Of the three, he is the only one that can be fooled on this issue by himself. When industrial physicians and employment managers reach this high concept of their obligations toward men and society, they will begin to be of real service in this, their chosen work. Then they will put aside all petty, inter-departmental jealousies and through combined effort more nearly accomplish the task set before them—that of actual service to the employed. If we do this conscientiously we need not worry about the personal result on ourselves or on our employers.

Democratization of Industry

Thus far I have strayed very little from the text given me, "The Human Relations Department from the Standpoint of an Industrial Physician." I would that I might, in passing, say something that would hurry the day when the names "Welfare Department," "Industrial Relations," and others, would pass and the term "Employees' Service Department" be more generally adopted. The poet who said, "What's in a name?" lived before the day when welfare came into disrepute as "hell-fare." I, personally, prefer the term "Employees' Service Department" because of the infinite growth in function that its very name permits. It may originally mean only the service the employer wishes to furnish the employed; it may later also cover all such service that the employees may render to each other; but lastly and finally it may include all possible mutual service that these two may be to each other and the community. The term is demo-

cratic above all, and will hasten the day of the safe democratization of industry.

Let me say a word for the industrial physician of his place in industry and society. I assume that it is unnecessary for me to argue with this audience as to the value of a highly skilled, socially-minded physician in industry; of the unlimited number of natural contacts that he makes between the employer and employee; of the dignified place that he should hold in the councils of the company; of the infinite service that he may be to the men. I need not remind you that the cursory physical examination to control entrance is the meanest work he does for the company, but that the painstaking physical examination that he makes at the man's request, for diagnosis of illness, is a real contribution to society.

Careful surgical care of the injured may loom large in the eyes of the officials, but the constant education in matters of medical and surgical care has in it the making of men. Personal attention to minor injuries by the physician, instead of by a nurse or orderly, may seem expensive to the management, but if the confidence, begotten by such treatment leads to inquiries, at the same visit, about pains and aches or mental distress that, undiagnosed, will eventuate in invalidity and dependency, the original service is no longer trivial.

Laggards Retard Medical Advance

The most pathetic sight to me today is that company which, having established an employment department, safety work, and a first aid department with nurses, etc., fools itself into claiming it has a medical department when, as a matter of fact, it employs a physician or surgeon on part time, or perhaps one physician on full time to care for its several thousand or more employees. Such a company has never permitted a full-blooded, sympathetic physician to function, for the knowledge would soon have been forced upon it that right here lies the essence of real service to its employees. The men will of course not bring their confidences and their physical ailments to a cheap doctor, one who is inaccessible, or one whose whole heart is not in the work of the plant. And yet how quickly they avail themselves of intelligent, conscientious service for diagnosis, relief, and education, when such is accessible.

The industrial physician should undertake to treat any condition where his service measures up to that obtainable by the worker on the outside, but he may be equally sure that his initial diagnosis and reference of the patient to qualified physicians and expert consultants, proper hospitals, etc., on the outside, are perhaps an equal con-

tribution to the men as a whole. To keep these unfortunate men out of the hands of advertising dentists and quack doctors is a service not to be measured.

High type of medical supervision of employees is costly, as is high type of plant management. One deals with design, raw products, replaceable machinery, output and sales; the other with human beings, exposed to the wear and tear of production, occupational disease, and ailments which, if undiagnosed, may consign the sufferers to the human scrap heap of society. The work of the plant physician is today the concern of every forward-looking plant executive. This type of plant manager is a better executive through the knowledge gained of his force through the proper industrial physician, and to that extent he lowers the unit cost of production.

III Health a Burden on Industry

America will have to husband her human resources if she would meet the competition of nations after this war. Industry has a real duty in this direction, not only for the men temporarily employed by her, but for those in society at large. Industry should be first to lead in health crusades, should especially support legislation and other measures looking to the increase of facilities for preventive medicine. Industry can especially afford financial support and favor for the teaching of industrial medicine, as well as for the increased application of diagnostic group medicine. For it is the failure to secure the results of good health, productivity, and happiness that is a considerable drag on industry to-day. We may distribute the burden of this waste in health values through compulsory sickness insurance, for instance, but compensation for illness, one-half of which is preventable, is uneconomic. And yet this legislation, with its overload of preventable illness, will in all likelihood be enacted within five years unless society at large is intelligent enough to immediately proceed to the program of the prevention of disease.

These are a few of the basic principles that lie within the establishment of health departments as a part of the program of industrial relations. It behooves the employment manager, in fullest cooperation with the industrial physician, properly to interpret the problem to the employer and society.

Needless waste of lives and limbs through accidents is now an accepted working practice. The shameless loss from unnecessary illness, death, and invalidity should lead to a "health first" campaign, that in its infancy promises fourfold the results obtained from the "safety first" move-

ment. The latter was merely negative. It merely prohibited the man from injury—left him as good as he was. The industrial health campaign is positive,—constructive. It seeks not only to protect the worker against acquiring illness through plant neglect, but uses its best efforts to raise the health and standard of efficiency of every employee. In building up men, it builds up their energy and producing power. It builds sane minds in sound bodies. It releases new creative forces and adds to the total of wealth produced per man, which is the only sound basis of general wage increase. If employment managers wish to play a part in the most significant of world movements, they must have real understanding of the trend of industrial medicine.

Of what avail relatively are magnificent new buildings and equipment if the men working in them are not protected against the special health hazards that accompany the processes of manufacture? Of what avail sanitary floors if promiscuous spitting is permitted? Of what avail if sanitation and health hazards are well guarded, if the workers' housing and living conditions make for malnutrition and disease? If both the factory and the workers' housing and living conditions be admirable, he may still face the dangers of contagious diseases, bad foods, poor milk, impure water supply, and lack of proper sewage and waste disposal. It is apparent at once that we must find some way to avoid this vicious circle. It is within the power of the industries chiefly to lead this health crusade to a successful issue. No energy that they can put forth in their business will so promptly pay large dividends.

SOUTHERN RAILWAY SURGEONS HOLD ANNUAL ELECTION

The annual election of the Association of Surgeons of the Southern Railway, which took place recently at New Orleans, resulted in the selection of the following officers: Dr. Harry T. Inge, Mobile, Ala., president; Drs. William H. Armstrong, Rogersville, Tenn., Daniel W. Scott, McDonough, Ga.; Albert R. Wilson, Greensboro, N. C., and William T. Mathews, Greenwood, Miss., vice presidents; Miss Edith Foltz, Washington, D. C., secretary. The next annual meeting will be held in Washington.

REHABILITATION OF DISABLED WORKERS AND INDUSTRIAL CRIPPLES

The state of New Jersey at the last session of the legislature provided for the beginning of rehabilitation of industrial cripples. New Jersey is thus one of the first states to provide for this work, Massachusetts being the only other state which has heretofore made such provision. Dr. Fred H. Albee, of New York, chief of the surgical service at the United States Army General Hospital No. 3, Colonia, N. J., has been appointed chairman of the commission.

PROTECTING THE HEALTH OF SOFT COAL MINERS BY PREVENTION OF DISEASE

BY EMERY R. HAYHURST, M.D., PH.D., CONSULTANT, DIVISION OF INDUSTRIAL HYGIENE, OHIO STATE DEPARTMENT OF HEALTH, COLUMBUS, OHIO*

PRACTICALLY no statistics are available concerning sickness among soft coal miners. The bookkeeping of vital statistics has not extended that far. Some of the local unions and benevolent associations can supply certain limited statistics but these are too local to warrant drawing conclusions therefrom. Hospital statistics in mining districts are not representative, however complete they may be, since an unknown percentage of miners go to hospitals when sick. No insurance companies have to date taken out group policies covering sickness, among other disabilities, among miners.

We must rely chiefly on physicians in mining centers for the information desired. The experiences of physicians, scattered throughout the districts, particularly as to points on which they agree quite unanimously, are apt to be a fair index of the sickness situation.

Following is a summary of statements, covered by the questionnaire by which physicians were interviewed personally in mining communities:

1. *Diseases Rarely Found Among Miners.*—Certain diseases reputed to be prevalent among miners elsewhere or to be suspected, were found to be practically absent among soft coal miners. These are lockjaw, anthrax, glanders, hookworm, rat-bite disease, and nystagmus.

2. *Diseases Found Less Frequently Than Among Other Classes.*—Pneumonia (except among Negro miners where it seems to be more prevalent); tuberculosis (that which occurs is generally of a very slow progressive type, difficult to differentiate from miner's asthma); and venereal diseases. Mortality statistics (Illinois coal miners) on pneumonia and tuberculosis are not so favorable, however, as physicians' reports would indicate.

3. *Diseases Having the Usual Frequency.*—Acute rheumatic fever; afflictions of the upper respiratory tract, such as colds, tonsilitis, middle ear diseases, nose, throat and sinus affections; acute bronchitis; eye afflictions, although the communicable disease, trachoma, or "granulated eyelids," was frequent in some localities; skin affections; foot affections; deformities; nervous affections; hernias; varicose veins; other chronic diseases in general; and malaria. Epidemic diseases such as influenza, smallpox, and summer

diarrhoea are usually worse than in the usual rural villages.

4. *Diseases with Occupational Earmarks.*—Noted among these are "rheumatism," asthmatic afflictions, and disorders due to alcoholic beverages. The "rheumatism" is of the type unassociated with fever, called musculo-articular, of which lumbago is the chief form, and the so-called "sciatica" is next in frequency. Exposure to cool, damp atmospheres, drafts, the weather, and straining efforts on the part of men often not physically adapted for same, are underlying causes. The incidence of asthma is decreasing. Bad ventilation probably still plays a chief part in its cause, but the breathing of dust, and the susceptibility of men with weak hearts or other chronic diseases probably account for what asthma is found. Asthma rarely occurs in individuals under forty years of age. About one or two working men in a hundred are reported as asthmatics, and such conditions are a frequent cause of temporary absences. Alcoholism is exceedingly common, perhaps more so than in other industries, since it seems to be traditional among a considerable number of miners to take a day or so off after each pay for an alcoholic debauch. Less serious are dust plugs in the ears (of no consequence, but the cause of some temporary deafness); eyes flashed by electric short circuits; callousness on knees and sometimes elbows, hands and shoulders, mostly in "low coal" districts; "gassing" due principally to accidental breathing of white damp after blasting, fires, or explosions; and premature aging. This last is not a marked feature. There is some eye irritation due to sulphur (pyrites) dust.

General Summary of Diseases.—There is no reason for believing that the usual afflictions, aside from the respiratory system and the musculoskeletal system, are more frequent among miners than among other employes. In fact, as a class, they are probably healthier than the average type of factory worker. Top workers, exposed to the weather, are said to have more sickness than those in the mine. Sickness is much more rampant among the women and children in mining

*The second of a series of two articles presenting the conclusions derived from a survey of the health hazards and afflictions of coal miners in Ohio and Illinois, conducted by the two states jointly, in a cooperative arrangement, under the direction of Dr. Hayhurst, the author of the articles. The first of the two articles was printed in the June issue of MODERN MEDICINE.

districts than among the men. Alcoholism is far and away the chief bane. It is said to be on the decrease, explained by one physician as due to education, the increasing cost of alcoholic drinks, their frequent bad quality, and the extension of prohibition. Of the respiratory afflictions, chronic bronchitis associated with asthmatic symptoms, and often complicated by a chronic form of tu-

and quarrymen" in the country at large (Registration Area, 1909). This cause, however, is greatly in excess of the general average of all deaths from violence, which is 10.6 per cent for "occupied males" in the Registration Area, 1909. But one other class of workers, steam railway employees, surpasses miners in the high rate of death from violence. The marked excess in death from this cause to a large extent nullifies any favorable comparisons possible for deaths from other causes, as for instance, tuberculosis.

3. The tendencies in death rates for the chief causes of death, obtained by comparing the years 1916-1918 with the total period 1912-1918, were found to be as follows: deaths are increasing from tuberculosis, 106.5 vs. 99.4; cancer, 45.4 vs. 41.4; cerebro-spinal diseases, 70.0 vs. 57.5; circulatory diseases, 90.3 vs. 80.3; pneumonia, 118.5 vs. 98.1; cirrhosis of liver, 22.1 vs. 17.6; genito-urin-

ary (non-venereal) diseases, 61.0 vs. 50.5; and violence, 404.6 vs. 398.2. Deaths from the following show decreasing tendency: respiratory diseases other than tuberculosis, 26.9 vs. 42.6; and suicide, 29.3 vs. 31.9.

4. Malaria and typhoid fever were limited practically to southern counties in the state where sanitary conditions in regard to water supplies and sewage disposal are notoriously bad. All the remaining causes of death were fairly evenly distributed in proportion to the number of employees in each district.

5. The death rate of Illinois coal miners when compared with those of the entire United States Registration Area¹ is directly excessive, in spite of the number of deaths from violence, for the following afflictions: typhoid fever, 30.8 vs. 13.3; cirrhosis of liver, 17.6 vs. 12.3; and suicide, 31.9 vs. 14.2. The violence rate stands, 398.2 vs. 90.9.

It is hardly more than speculation to attempt to state the causes of the increase in mortality among Illinois coal miners. Violence as a cause of death has not increased materially. Working



The Graham Hospital, Centerville, Iowa, which is conducted by the United Mine Workers for its members. It is a fully-equipped, modern hospital, costing \$15,000. Medical and surgical service is furnished to members of the United Mine Workers and their dependents at the rate of \$0.75 a month per member. The institution was opened under this plan of assessments in August, 1918. The hospital staff is composed of Dr. G. G. Graham, Dr. Davis, and Dr. McFarland of Centerville; Dr. George Still of Kirksville, Mo., and Dr. S. L. Taylor of the General Hospital, of Des Moines, Iowa.

berculosis, is undoubtedly more prevalent than among agriculturists.

Mortality

Mortality statistics for Ohio coal miners have never been compiled. However, something may be gained from the result of figures compiled for Illinois coal miners where the state miners' organization keeps a careful record of each coal miner's death in its Death Claim Insurance Department.

There follows a summary of tables and statistics compiled for Illinois miners during the past summer (1918).

1. The death rate for Illinois coal miners has been constantly on the increase since 1912, the year for which the first figures were obtained. In that year the death rate per annum per 100,000 employees was 1,003; the death rate for 1917 was 1,167; and for the first six months of 1918, 1,185.

2. Violence, exclusive of suicide, constituted 36.8 per cent of the causes of death in 5,428 deaths among Illinois coal miners, from 1912 to 1918. This rate is 2.3 points less than for "miners

¹Mortality Statistics, page 19, 1916.

conditions are undoubtedly becoming better from year to year. Unquestionably, it cannot be charged to any single factor, such as alcoholism, which has been on the decrease throughout the period covered in the statistics; nor fatigue, since work hours have decreased while the assistance of blasting powder and machinery have increased; nor, with the exception of certain diseases like typhoid and malaria, has geographical distribution in the state anything to do with it. It is probable that a greater percentage are reaching the later age periods when deaths are more frequent, since the industry is not, in its present dimension, more than a generation old in Illinois: the same may be said for Ohio. It is probable also that a change in racial complexion, and in greater congestion of population and its attendant evils, without a corresponding increase in health supervision of housing and living conditions, are potent and basic factors.

How Miners Cope with Sickness and Death Hazards

Organized Medical Care.—Whereas in many other industries the management itself takes a leading part in organized medical care, such as sick and benevolent associations, this is not the case in the soft coal mining industry. Any organization in this line is supervised by the workers themselves. Whether any such organization whatever is present depends very largely upon (1) the size of the working force; (2) the location of the mine in respect to towns and cities; (3) the racial complexion; and (4) the interest manifested by the local union, which, in turn, depends largely upon the views of the officials of the same. Where a few men are employed, the existence of a benevolent association renders such service out of the question. Where the mine is located in a populous community, so many of the workers belong to secret lodges carrying sick benefits as seriously to interfere with a benevolent association. Where a majority of the workers are foreigners, strictly benevolent associations have a hard time to exist, since most of the foreigners prefer to belong to their own lodges, most of which, besides carrying sick benefits, are more or less religious in aspect. Where a benevolent association does exist, it is invariably optional with the men whether they belong or not, so that a considerable percentage of all workers are not members of the given local's sick benefit association.

It was the universal statement that practically all foreigners belong to some one or more of their foreign orders. They seem, indeed, more appreciative of such insurance protection than the native Americans. Many of them have received their initiation into community insurance schemes

abroad in the various countries from which they or their parents have come.

The usual forms of industrial insurance were everywhere present in the mining districts, through which children, in particular, are covered for funeral benefits.

Many of the miners, perhaps the foreigners more than the others, carried sickness insurance in several organizations, so that the statement was frequently made that a man while sick might draw more money in sick benefits collected than he did while well and at work.

Taking up a collection by passing around a paper or by "passing the hat" was a frequent procedure to help out some sick or injured worker. The amount of the collection usually depended on the case and too often on the popularity of the worker.

The great benefits derived from state compensation for injuries were everywhere evident.²

In contrast to the usual absence of sick benefit organization was the death benefit, really a burial fund, provided by most locals. On the occasion of the death of a miner, the local by special assessment or check-off at the mine, raised a fund varying in localities from \$25 to \$500. Usually a similar amount was raised for the death of a miner's wife, or other dependent adult, and a graded amount for children based on age of the child. At many larger mines the company also contributed \$25 provided the mine worked on the day of the funeral. This was arranged by agreeing that only the immediate friends of the deceased attend the funeral and the balance work. In Illinois, in addition to what given locals may do, the Death Claim Insurance Department of the state miners' organization pays the beneficiary \$250.

Status of Medical Services

First aid is generally well provided for at mines. Years of disastrous experience have resulted in bringing this about. Quarters for the injured or sick, however, are scarce except in two or three larger mining cities. There is no such thing as physical examination, although both workers and employers commended its advisability. If an epidemic breaks out in a mine or mining village, it is left quite entirely to whatever local health administration there is to cope with the situation. The fury of the present epidemic of influenza in mining districts was out of all

²At a home visited in company with a mining physician near Glouster, Ohio, was an instance in point: A miner, twenty-one years old, had been laid up twenty weeks with a compound fracture of the foot. He was about ready to go to work again. During this time he had received state compensation and, in addition, two collections from the men at the mine where he worked. These netted him \$28.30 and \$26.10. In the same house with him was his father-in-law, sixty years of age, an old miner, who had reared twelve children, and had mined all his life until "rheumatism" had compelled him to give up at the age of fifty-five years since which time he has had no income except one collection which the "boys gave him" of \$26.10.

proportion to most other districts and attests to the inadequacy of health supervision in them.

Inquiry shows that physicians tend to remain permanently located in mining districts; that they are very busy, and in normal times have a difficult subsistence, particularly during the months when the miners are not working. Though the workers are largely foreigners, the physicians are nearly all native Americans. Contract practice is almost a thing of the past. Even workers' organizations look unfavorably upon this form of medical service. A number of physicians visited said that they had discontinued contract practice as unfeasible and unsatisfactory. The prevailing fee rates are about the same in mining districts as in similar districts in the state of Illinois but rather less in the state of Ohio. The usual fees are: For calls at the house, \$1.50 to \$2; night calls, \$2 and up; office calls, \$1 and up, usually with medicine included; and confinement cases from \$10 up.

The ratio of physicians to population is about normal in Illinois, but the situation in Ohio shows a dearth of medical practitioners, being one physician to 2,016 of the estimated population in ten typical mining towns selected (the ratio through the United States is 1 to 739). It was found that this is not a war situation as very few physicians left mining districts in either state for direct war services. They were especially requested not to. Non-medical practitioners, such as osteopaths, chiropractors, christian scientists, etc., are few and far between. Licensed midwives are practically absent. Women practising midwifery, especially in foreign communities, are to be found here and there, but this practice is gradually abating as the foreigner is desirous of getting a "good doctor" on such occasions.

The trained nurse is practically an unknown person in mining communities; in fact, there are whole counties in both states in which there is no trained nurse, public or private. This is true, probably, of three-fourths of the mining counties. Many persons expressed the opinion that a community organization to assume part or all the cost of the services of a trained nurse would be advisable.

Diagnostic facilities are meager. An x-ray is most apt to be found of the various laboratory apparatus. Recourse for such facilities is usually had to large cities or the state laboratories. Such methods are reasonably prompt, but physicians said that there would be much more scientific medicine practised were diagnostic facilities more convenient.

Access to hospitals varies greatly. Some of the larger communities are fairly well provided for. Most communities, however, have no such provisions. The accessibility of the hospital means

much more to the physicians and patients' families and friends than it does to the patients, who may be transmitted easily enough fifty miles or more away, to a hospital. Many times physicians reported that to take a case to a hospital meant from one-half day to a day's time for each trip. Miners rarely resort to hospitals for sickness. The foreigner is more inclined to take advantage of hospitalization than is the native American miner. The miner's organization maintains its own hospital at West Frankfort, Illinois. It is a first-class institution and receives both miners and members of miners' families, the hospital expenses being met by the union. Also one of the larger companies maintains its own hospital at Zeigler, Illinois, which is thoroughly equipped and manned. A couple of cooperative hospital agreements between miners and hospitals exist in Glouster, Jacksonville, and Logan, Ohio. At Marion, Illinois, the unions also maintain their own mortuary and undertaking business, including ambulance, hearse, etc.

Organized Aid and the Physician

About 90 per cent of the foreign type of miners belong to one or more sick benefit societies and about 50 per cent of the native miners. The usual fraternal societies are strong among the latter, hence sickness insurance already exists to the above extent in the mining districts. The weekly benefits paid run from \$2 to \$10 or \$12, the vast majority paying \$5 per week. As a man may belong to several, he may of course derive a fair income during sickness. The physician is almost entirely dependent upon the returns from these sick benefit societies for his fee. He fills out weekly a certificate of illness and, in turn, gets some or all of his fee. These financial transactions were commented upon by physicians as often uninviting. Much time is spent in filling out various certificates. A couple of physicians in an Illinois town stated that, between them, at least eight hours per week were spent in this filling out of a multitude of sick benefit certificates. In practically all cases the physician makes no charge for this service, although here and there a charge of from 50 cents to \$1 was made for each certificate. Many physicians commented upon the evident attempts at malingering, particularly where a workman was over-insured by carrying policies in several societies. Most physicians stated that they would like to see some other system adopted in place of the present sickness insurance relationships; for instance, the submission of bills directly to the benefit society, and the dealing with a limited number of societies per patient. The physician feels safer as to his own fee when he is dealing with an organized

body such as a lodge or society than when he is dealing directly with many of the patients who seek his services in mining communities.

The general average of collections is about 75 per cent of the fees charged, in normal times, although it is somewhat better at present. Some physicians reported as low as 50 per cent collected; others claimed collections as high as 90 to 95 per cent. Collections were better in isolated localities as a rule. The continual shifting of labor (labor turnover) is also blamed for the loss of many accounts. Slow pay is a bad feature in normal times. Workmen's compensation for accidents has resulted in better collections and more prompt demand for physicians' services in case of treatment for injuries.

Quackery flourishes practically without limitation in mining communities. The prescribing druggist and grocerman is a fairly common occurrence, also. One physician in an Ohio town stated that a prescription of a cousin of his, a physician who had been dead twelve years, had become the general property of the neighborhood, and whenever persons had something resembling the original sickness prescribed for, they went to the given drug store and asked to have Dr. So-and-So's prescription Number such-and-such filled for them.

The old-time street medical vender has quite disappeared. The miner patronizes the various types of nostrums very liberally. This is undoubtedly due to several factors such as the extensive advertising of the same, lack of ready funds with which to pay for legitimate treatment, and the desire to try a cheap substitute first. One cannot help gaining the impression that enough money is thrown away in mining communities on unscientific medical care to more than foot the bill if the whole thing were put on an organized sickness insurance basis, to say nothing of the saving in the amount of sickness and preventable deaths.

Twelve Suggestions for Improving Health Conditions in Mining Communities

1. There should be a housing survey.
2. There should be a medical service survey.
3. More aid should be extended to the respective state mining departments, particularly in the nature of hygienists' services.
4. There should be a standardization of the many existing forms of health insurance which now prevail.
5. All employees should be required to carry health insurance and optional membership done away with.
6. More Americanization is necessary in foreign districts.

7. More hospital, dispensary, nursing, and diagnostic services are required.

8. Physical examinations, preferably by state employment agencies, should be compulsory for employees at the time of hiring and after returning from an absence due to sickness or injury.

9. In any standardization of sickness insurance a free choice of physician should be allowed and remuneration placed on the merit basis, i. e., so much for a given service rendered. A large part of medical service could be fee-scheduled in much the same way as certain county medical societies at present publish their service rates.

10. Arrangements should be made for the services of specialists and experts, both for business management and for the insurance features, as well as for treatment services.

11. A certain part of all sickness insurance premiums paid should be definitely set aside to provide for the application of sanitary science, the latter to be under general supervision of the state health department.

12. All persons or services having to do with sanitation or medical care should be licensed as a check against unscientific methods.

THE JOURNAL OF INDUSTRIAL HYGIENE

The *Journal of Industrial Hygiene* made its first appearance in May, 1919, under the editorship of David L. Edsall, A.M., M.D., Harvard University; A. F. Stanley Kent, A.M., D.Sc., editor for Great Britain; Thomas M. Legge, honorary consulting editor. The following associate editors are named: W. Irving Clark, Jr., M.D.; Alice Hamilton, A.M., M.D.; Emery R. Hayhurst, A.M., Ph.D., M.D.; Yandell Henderson, Ph.D.; William H. Howell, Ph.D., M.D., Sc.D., LL.D.; Frederic S. Lee, A.M., Ph.D., LL.D.; Harry E. Mock, M.D.; J. W. Schereschewsky, M.D.; and C.-E. A. Winslow, M.S., A.M., Dr.P.H. The publication is under the managing editorship of Cecil K. Drinker, M.D., and Katherine R. Drinker, M.D.

The first issue contains a review of industrial medicine and surgery by Harry E. Mock, M.D., Lieut.-Col., M.C., U.S.A.; a treatise on lead poisoning in American industry, by Alice Hamilton; a study of the problem of fatigue by Reynold A. Spaeth, of Johns Hopkins University, and a study of the medical aspects of telephone operating made by Anna G. Richardson, M.D., physician of the New England Telephone and Telegraph Company, Boston. The number is especially complete as to abstracts and bibliography of related subjects.

In the June issue the value of this journal in its special field is shown by the range of subjects treated. "The Use of Army Gas Masks in Industry" is presented by A. C. Fieldner, Major, Chemical Warfare Service, U.S.A.; "Human Health and the American Engineer" by George C. Whipple, S.B., Harvard University; "Chip Fractures of Terminal Phalanges" by William R. Hurley, M.D., Bethlehem Shipbuilding Corporation, Quincy, Mass.; "Inorganic Poisons, Other than Lead, in American Industries" by Alice Hamilton, M.D.; and "Medical Inspection of Factory Employees" by Maynard A. Austin, M.D., surgeon and medical director, Remy Electric Company,

Anderson, Ind. The book reviews and announcements are calculated to give the desired information on the broadening activities of industrial medicine.

AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS

The annual meeting of the American Association of Industrial Physicians and Surgeons preceded the formal opening of the American Medical Association meeting and filled one full day, June 9, with solid discussions. President Harry E. Mock, former physician to Sears, Roebuck & Co., delivered an address on "New Developments in Industrial Medicine and Surgery," which appears in full in this issue of MODERN MEDICINE. "Syphilis, an Inestimable Factor in Industrial Inefficiency" was treated by Capt. E. A. Oliver, M.C., U.S.A. "Is War-Time Surgery Applicable to Industrial Surgery" was handled by Dr. John Moorhead, surgeon of the Interboro Rapid Transit Co., New York. "Strains of Back, an Accident or Disease" was the subject of a paper by Lieut.-Col. R. B. Osgood, M.C., U.S.A. "Conservation of the Vision of the Industrial Worker" was introduced by Dr. Wm. W. Blair, Pittsburgh. A frank discussion of the "National Program for Industrial Hygiene and Medicine" was led by Col. A. J. Lanza, United States Public Health Service.

During the business meeting in the morning it was decided to appoint a legislative committee, a publicity committee, and a committee to draft a curriculum for a uniform course in industrial medicine and surgery which may be given at medical colleges. There was some discussion over this latter suggestion inasmuch as some medical men connected with the faculties of medical colleges felt that medical schools on the whole would find it impossible to add to their curriculum.

The outstanding features of the afternoon session were a remarkable paper by Dr. John Moorehead, surgeon of the Interboro Rapid Transit Company of New York, and the appeal of Dr. C. D. Selby of Toledo, Ohio, for a continuation of the division of industrial medicine and hygiene of the working conditions service of the United States Department of Labor. Dr. A. J. Lanza, chief of that division, in his address, which preceded Dr. Selby's appeal, explained in considerable detail the investigations made by his division and how it was on a large scale helping industries in all parts of the country better to protect the health of the men and women in their employ. Dr. Selby made his audience feel that to abolish Dr. Lanza's division of the labor department, as threatened by the unwillingness of the present Congress to appropriate the necessary funds, would be nothing short of a national calamity.

Dr. Selby felt that the practice of industrial medicine was beginning to do much to stabilize labor conditions in the plants into which it has been introduced.

During the morning discussion, the question of defining what constituted a traumatic hernia brought out the importance of the labor problem which touches all branches of industry at the present time. Dr. A. W. Colcord, of the Carnegie Steel Company, read a resolution which defined traumatic hernia as hernia which occurs only when there is a definite laceration of the body-wall together with no evidence of a hernial sac. Dr. Colcord felt that employers were being greatly imposed upon by employees who wished to collect damages under the workmen's compensation act for injuries the original causes of which date back previous to the time of employment.

Dr. Francis D. Patterson, of the Department of Labor

and Industry of Pennsylvania, in characteristically vigorous and amusing phraseology roundly criticized "the constitutional effrontery which characterizes the legal profession on every occasion" in the attempt of lawyers to diagnose the conditions which lead to hernias, and suggested that the association should place itself on record as suggesting that a member of the medical profession be placed upon every industrial accident board in order that his advice might be available in questions requiring an expert medical opinion. "There isn't an employer throughout the land," he added, "who hasn't bought an old hernia and paid a darn good sum for it."

Dr. Otto Geier, of the Cincinnati Milling Machine Company, remarked that, since labor has become so favorably inclined toward the whole proposition of industrial medicine, it might not be wise to antagonize the workers and suggested that perhaps it would be better to ask the American College of Surgeons, which is not in immediate contact with the human side in industry, to define traumatic hernia for the benefit of workingmen's compensation boards.

Discussions were given by Major Warren Walker, M.C., U.S.A., C. A. Lauffer, chief surgeon, Westinghouse Electric Co., Pittsburgh, Dr. C. G. Farnum, chief surgeon, Avery Company, Peoria, Ill., Dr. James Boardly, Jr., Baltimore, Dr. J. B. Curry, American Thread Co., Holyoke, Mass., and Dr. Otto P. Geier, Cincinnati.

The following officers were reelected: President, Lieut.-Col. Harry E. Mock, M.C., U.S.A., Division of Reconstruction, Washington; first vice-president, Dr. Thomas R. Crowder, Pullman Co., Chicago; second vice-president, Dr. Otto P. Geier, Cincinnati Milling Machine Co., Cincinnati; secretary-treasurer, Dr. Francis D. Patterson, Department of Labor and Industry, Harrisburg, Pa.; assistant secretary-treasurer, Miss Pauline Gunther, 122 So. Michigan Ave., Chicago. Directors were elected as follows: Dr. W. Irving Clark, The Norton Co.; Dr. R. W. Corwin, Colorado Fuel & Iron Co.; Dr. C. E. Ford, General Chemical Co.; Dr. G. L. Howe, Eastman Kodak Co.; Dr. J. E. Mead, Ford Motor Co.; Dr. F. C. Warnshuis, Pere Marquette R. R. Co. The directors held over are: Dr. A. W. Colcord, Carnegie Steel Co.; Dr. Judson C. Fisher, Globe Indemnity Co.; Dr. E. B. Hanna, Cadillac Motor Co.; Dr. H. P. Hourigan, The Larkin Co.; Dr. D. B. Lowe, B. F. Goodrich Co.; and Dr. J. W. Schereschewsky, U. S. Public Health Service.

INDUSTRIAL AND TRAUMATIC DEFORMITIES

By far the most essential consideration in the surgical treatment of industrial casualties, injuries, or fractures, is in the careful application of the principles of modern asepsis, since every such casualty is a potential deformity, and infection is the greatest factor in producing deformity—to summarize the remarks of Walter G. Stern, M.D., F.A.C.S., Cleveland, surgeon, in an address delivered at the recent Columbus meeting of the Ohio State Medical Association. He spoke on "Industrial and Traumatic Deformities, Their Prevention and Treatment."

"Modern orthopedic surgery," he stated, "would hold that all casualties, injuries, or fractures are potential deformities and that the principles of reconstruction must be applied with the first dressing and continuously carried out until complete functional recovery has been attained. While the present day military needs have brought out little that is new, yet it has standardized our practices and focused attention upon the necessity for functional care and rehabilitation."

"General surgery has long been contented with excising

or repairing the damaged tissues, and a case was considered cured when the wounds no longer required dressing. Orthopedic surgery is satisfied only when the injured man is able to make as much functional use of the damaged part as is humanly possible."

Dr. Stern, who is orthopedic surgeon to Mount Sinai and St. John's Hospitals, Cleveland, Ohio, and to the Elyria Memorial Hospital and Gates Hospital for Crippled and Deformed Children, Elyria, Ohio, declares that infection is to be avoided at all hazards and at all costs.

The prevention of infection is accomplished "by scrupulous care during the first aid and by refraining from all unnecessary operation surgical intervention until the time comes when better circulation has been reestablished and the damaged parts more immune to irritation and infection. It will usually be sufficient for the first aid to apply a sterile emergency dressing and firmly bandage the injured part to a supporting splint or brace and transport the patient to more favorable surroundings—hospital or doctor's office, when possible—where the *real* 'first aid' should be given. This should consist of a thorough cleansing and disinfection of the part, the debrissement of all tissues whose vitality is manifestly lost, careful haemostasis, the 'toilet of the wound for tomorrow's needs,' loose suturing for the approximation of the soft tissues, the complete reduction of fractures—usually under anaesthesia—and finally the proper fixation of the injured member in the position most suitable for combatting any deformity which might arise."

A resumé which Dr. Sharp prepared as a review of his conclusions, sums up the argument and further states:

"Extensive use should be made of all the modern forms of extension, Steinman pin, Calliper tongs, Balkan frames, Thomas splints, etc. All fractures should be radiographed for study and record.

"After the danger of infection has passed, corrective operations can be safely performed.

"Closed fractures are not to be unnecessarily opened up. End to end apposition of bone fragments is not a '*sine qua non*' for a good functional.

"Ununited and malunited fractures, deformities, scars, and defects can be overcome by well chosen measures.

"The benefits of hydro-, electro- and mechano-therapy, massage, active and passive exercises, and functional re-education are to be made available for the injured worker in order to rehabilitate him back into industry in as short a period and in as good physical condition as possible."

PREVENTABLE INJURIES TO THE EYES

Carelessness is chiefly responsible for a major proportion of the many eye injuries that occur each year, and blindness as well, says Walter N. Sharp, M.D., who has written a discussion on "Eye Injuries in Relation to Industrial Organizations and Insurance," which is published in the May issue of the *Indianapolis Medical Journal*.

The carelessness may be on the part of the individual; again it may be an employer's carelessness in not providing proper safeguards against eye injuries, or it may be the carelessness of an attending physician in doing less for the patient's welfare than he should have done in a fair attempt to conserve the sight of the injured eye.

Dr. Sharp presents his own recent records of 509 cases of injury to the eye, as follows:

Glass from broken lens worn for protection.....	1
Glass in the eye from other sources.....	4
Corrosive substances: lime, sal soda, acids, kerosene oil, cyanide of potash, carbide, live steam, hot solder, hot glue.....	52

Steel and iron in cornea.....	103
Emery in the cornea.....	118
Other substances: stone, brick, concrete, brass, lead and others, the composition of which was not known	201
Penetration of the eyeball by wire, 3; nails, 8; steel, 14; glass, 1; copper, 2; stone, 2.....	30
	509

About 80 per cent of these accidents were received in industrial occupations.

Dr. Sharp writes, in part:

"The majority of injuries of the eye received are apparently mild and insignificant ones, but if they are not properly attended to they become serious. I refer principally to foreign bodies in the cornea. These bodies are composed principally of minute particles of emery, though small particles of iron or steel, rust, etc., may be lodged in the outer layer of the cornea. Of all bodies, emery is the most difficult to remove nicely, as it flakes and leaves a stain which must also be removed as this is oftentimes quite as irritating as the original body itself. These bodies usually lie in the epithelium or outer layer, though occasionally they are embedded much more deeply. They must be removed by gently pricking about them and lifting them out instead of scraping them out, for by the latter method, much more tissue is destroyed and there is much more liability to infection; besides this, destruction of the corneal tissue below the epithelium often results in a loss of transparency.

"As a rule, foreign bodies in the cornea do not affect the visual acuity unless they are embedded over the pupillary area.

"I have seen cases in which foreign bodies were unskillfully removed, large areas of epithelium scraped off and ulceration followed, resulting in complete loss of vision. Such a case came under my observation a few years ago. The man was sent from an adjoining city where he had been treated, to the city hospital. The whole center of the cornea was in a state of purulent ulceration as a result of unskillful treatment following the presence of a small foreign body.

"Pieces of magnetic metal embedded in the cornea can often be removed by an electro-magnet without any injury to the cornea except that originally produced by the foreign body.

"Large pieces of metal graze the cornea in some cases and produce more trouble than a body embedded in the outer layers.

"Why do we have so many eye injuries? When we sum up the thousands of minor injuries that only physicians and liability companies know of, and the hundreds of more serious accidents brought to trial before the Industrial Board we need use but one word in answering this question—carelessness.

"With some people, the preaching and teaching of conservation of vision 'goes in one ear and out of the other.' They seem to pay little heed to the preservation of the function of vision, which is one's greatest asset. It always seemed strange to me that an employer was responsible for the carelessness of an employee, especially when every means of precaution to avoid accident had been taken. In fact, he is not responsible.

"According to reports in the *American Journal of Ophthalmology* there were in the United States for twelve months previous to June, 1917, 59,436 accidents to the eye which were about 8.3 per cent of all industrial accidents. That journal says that approximately 15,000 persons in the United States are blind to-day as a result of injury in industrial occupations, and that the maintenance of these blinded artisans during the remainder of their lives will cost nearly ten million dollars, which expense will fall in large part on relatives, the community, or the state."

There is nothing mysterious about the prevention of disease, declares the United States Public Health Service. Clean homes, clean hands, clean food, clean teeth, clean milk, pure water, fresh air, sanitary privies, war on flies and mosquitoes cost but little, but work wonders in preventing sickness.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C. E. A. WINSLOW, DR. P. H., Editor

THE CO-RELATION BETWEEN POVERTY AND DISEASE

THE sessions of the Section on Health of the National Conference of Social Work at Atlantic City in June were entirely devoted to a single topic—the relation between poverty and disease. An unusually able and well-informed group of speakers discussed the effect of a low standard of living upon food and housing, infant mortality, tuberculosis, venereal diseases, and industrial diseases, and upon the adequacy of general medical and nursing care. Results of recent investigations were presented, of much importance to all who are concerned with the protection of the Nation's health.

The discussion was remarkably free from facile dogmatism. Speakers on infant mortality and venereal disease and malnutrition, in particular, emphasized the complexity of the problem and pointed out that racial and social factors may often in an individual case be more important than economic ones. The infant death rate, for example, is frequently higher in native-born and comparatively prosperous population groups than in much poorer neighborhoods inhabited by foreigners among whom breast-feeding is a general custom.

The fact that variable A may sometimes produce a greater effect than variable B, does not, however, indicate that B is a wholly negligible factor. There can be little doubt that, when other things are equal, poverty is correlated with a high death rate. In the Johnstown survey¹ it was found that the infant mortality in one ward was 271 deaths per 1,000 births, against 134 for the city as a whole, and fifty for the ward which showed the lowest rate, and the explanation is that "This is where the poorest, most lowly persons of the community live—families of men employed to do the unskilled work in the steel mills

and the mines." A report by Anna Rochester of the Children's Bureau of similar studies conducted in Baltimore reveals essentially similar results. Dr. Seydenstricker and his associates in the United States Public Health Service² find that among cotton mill operatives in South Carolina the rate of disabling sickness was 70.1 per 1,000 among families with monthly income equivalent to less than \$12 per person (on an adult male unit basis); with an income between \$12 and \$14 the rate was 48.2 per 1,000; with an income between \$16 and \$20 it was 34.4; and with an income of \$20 or more it was 18.5 per 1,000.

We may conclude from these figures and from many similar investigations that poverty and sickness are closely correlated. We cannot conclude that the poverty is responsible for the excess of sickness, for, in many instances, the relation of cause and effect may be reversed. Usually people do not live in the poorest quarters of a city or work at its underpaid employments by choice or by accident. In general, and on the average, in such districts and such employment is found a concentration of tuberculosis stock, of alcoholic stock, of feeble-minded stock—poor protoplasm and a bad environment supplementing each other in a vicious circle.

No one can perhaps tell just how far poverty in such cases is the real and effective cause of the failure to achieve and maintain a normal standard of physical health. It is abundantly clear in specific instances that poverty is at least one direct factor in the causation of disease,—as was pointed out at the Atlantic City conference, that many people are sick and many people die because they are poor, not only in starving Russia and devastated Belgium but in America as well. The mother who is forced by economic necessity to work in a factory instead of nursing her baby, the victim of tuberculosis who, because of economic pressure, goes on working long after he should have been in a sanatorium,—these are all too familiar figures to the public health worker.

¹ Publication No. 9, United States Children's Bureau, Washington, D. C.

² Public Health Reports, November 22, 1918.

General Gorgas, it will be remembered, was convinced by his experience at Panama that the best way to combat even pneumonia was by raising the standard of living for the individual and the family.

That the standard of living of American families is to-day in many cases inadequate for the maintenance of physical health was made abundantly clear by the data presented at the Atlantic City conference. The studies of the United States Bureau of Labor Statistics conducted under the direction of Royal Meeker and summarized elsewhere in this issue of MODERN MEDICINE have thrown a flood of light upon the subject. It appears from these studies that, while the average of wages has risen over 50 per cent during the past five years, the cost of the necessities of life has risen in a considerable higher ratio so that for the average workingman what the economist calls "real wages"—wages measured not in dollars but in their equivalent of food, clothing, and housing,—have fallen since 1914. It was true in 1914 that a considerable proportion of families had incomes inadequate for the provision of good housing and good food and totally inadequate for the provision of adequate medical and nursing care. According to the Bureau of Labor Statistics there must be even more families in this condition today.

If an initially normal family cannot gain a livelihood adequate for its minimum physical needs there is evidently a problem of social readjustment which our nation must face as a fundamental of post-war reconstruction; but what shall be said of the family which on account of inherent physical or mental defects is unable to reach a minimum level under a wholly fair and equitable basis of compensation? There are but two alternatives, since the moral sense of mankind repudiates the rigorous application of the principle of unhindered natural selection. The combination of defective protoplasm and crippling environment may be allowed to accomplish the major portion of its work, and society may then salvage what it can from the wreck by some form of institutional relief; or, social energy and community funds may be applied in preventive fashion to make good the deficiencies in the beginning. The latter seems likely to prove more economical in the long run.

The immediate result of the Atlantic City meeting was the appointment of a special Committee on the Standard of Living Essential for the Maintenance of Health. It is hoped that this committee will be organized with a membership of economists, statisticians, household administrators, dietitians, and housing experts sufficiently

eminent to command general confidence; and that next year it will be able to report an approximate minimum for the family budget, adjusted so far as necessary to varying geographical and social conditions and so connected with the index of price levels that it can be utilized on a sliding scale for some time in the future. The formulation of such an authoritative standard should stimulate each locality to determine what proportion of its population is actually below the limit of safety; and it should prove of material value to the public health worker in his attempt to deal with those special factors in the health problem which have their roots in poverty. EDITOR.

SUCCESS OF PREVENTIVE MEDICINE

"FEW realize how crucial has been the test of preventive medicine in the war just finished. Appalling as has been the number of battle casualties, the death rate from disease has been held down as never before. The statistics available show conclusively that the great scourges and plagues of former armies have been held in check: that is, typhus fever, cholera, recurrent fever, typhoid, seury and malaria, and, not least important, smallpox. Influenza with pneumonia, occurring in an epidemic sweeping over the eastern and western hemispheres, has been the epidemic that has baffled medical science and stands out with startling distinctness as the one uncontrolled epidemic. The death toll of pneumonia has almost equaled the battle casualties of those killed and dying of wounds in the American army. In spite of the failure to control influenza and pneumonia, this is an extraordinary record of disease control, and never, in any previous war, has the knowledge of medical science and sanitation, and the application of this knowledge been able to accomplish so much. We saw typhoid start as an epidemic in Belgium, in 1914, spread with its old-time fury among the troops at that point, and then we saw it conquered by sanitation and vaccination. We have seen typhus spread with terrible fury in Serbia and in Austria, we have seen typhus and recurrent fever break out in Russia, and again through the knowledge that these diseases are carried by body lice the epidemics were controlled. . . . To appreciate fully the meaning of this result of preventive medicine and what the American medical profession has accomplished, let us study the battle casualties and disease rates of former wars, and, by this contrast, appreciate the achievement."—Alexander Lambert, presidential address, seventeenth annual session of American Medical Association, Atlantic City, N. J.

HOUSING AND HEALTH

BY JAMES H. McBRIDE, M.D., PASADENA, CALIFORNIA; MEMBER CALIFORNIA STATE COMMISSION OF IMMIGRATION AND HOUSING; PRESIDENT AMERICAN NEUROLOGICAL ASSOCIATION*

MAN is naturally an outdoor animal. Relative to his entire history, his civilization is an achievement of yesterday and he is still trying in a bungling sort of way to adjust himself to its complex conditions. His bad housing, his diseases, his injurious occupations, and his criminality show how far he has yet to go before he can make any just claim to ideal morals or sanitation.

The sanitary importance and social value of good housing have been appreciated only within recent years. The house a man lives in, with its material and human environment, is immediately related to his health, his character, and the quality of his work. It is largely a measure of what he is and what he can do, for we find that people may be saved or killed, that they may be made honest or criminal, that even the human interests of a nation may be promoted or harmed by the conditions that are summarized in the word housing. From the viewpoint of physical stamina, civilization has made a sorry failure of its care of the race, for if our knowledge of wild men is an indication of the kind of men that preceded civilization, instead of gaining, men have lost in physical vigor since they have lived in houses.

Longevity Not Really Increasing

We have not been free from a certain amount of self-deception in regard to the supposed increase of the length of life during the past century, for the increase has been largely due to the lessened death rate of infancy. Men do not live as long after fifty as did their grandfathers. We are saving more of the babies, but adults are breaking down from disease of the internal organs.

There are numerous indications that the race is not gaining in physical stamina, in ability to stand the increasing stress and adverse condi-

WHY GOOD HOMES ARE NEEDED

The vital part which housing conditions play in determining the health and hardihood of a people is convincing evidence of the necessity for improving the standards of housing in crowded industrial centers and in the eongested quarters of large cities.

The measurable benefits in health and prosperity resulting from the projects for better housing which have been carried out in this and other countries is proof enough of the sound economic reasons for insistence upon better housing.

Unhealthful housing accommodations exist in country districts as well as in cities.

tions of civilized life. There are many causes for the physical degeneracy that is seen today, but one of the chief causes is the houses men live in and the general conditions that are connected with house life. Housing is one aspect of the complicated conditions that affect the health of men individually and, also, that of communities. It is only recently that the evils of bad housing and their extent have become ap-

parent, and we are but now in the pioneer stage of remedial work. The growth of city slums where is found much of the wreckage of our so-called civilization, is largely in proportion to the size and wealth of the cities. As palaces multiply on the avenues, slums spread like a pestilence in abandoned districts, and from the latter comes an increasing multitude of diseased and defective humanity.

The Curse of Congestion

Land congestion in cities, tenement house evils, overcrowding, disease, and human degeneracy are by no means modern. The tenement is an old offender. Tyre, Babylon, and Rome had it and there is no evidence that these cities made any intelligent attempt to remedy the evils that resulted from the tenement. According to Eugene Jager, tenements were introduced into Rome 445 B.C. In the time of the Emperors there were 46,000 rented buildings and 18,000 private houses in the city of Rome. Owing to lack of transportation, land was high, rents were exorbitant, and there resulted much crowding of buildings. Sulla, whose fame seems to have been out of proportion to his income, lived on the ground floor of a tenement. Because of high rent, a dethroned king of Egypt lived in a small apartment in a top story. He was at least more fortunate than other kings who were then living in Roman dungeons. As land became more expensive, buildings rose to many stories, and, later, Augustus found it necessary to limit their height by royal decree.

*Address delivered before forty-third annual meeting, American Academy of Medicine, Atlantic City, N. J., June, 1919.

Martial complained that he had to write his poetry in a tenth-floor room and that he had to climb two hundred steps to get to it. Montelius, the teacher of Horace, had to live in an attic and paid high rent. These rooms were small, with low ceilings, no window, and no ventilation.

Rent Reduction a Remedy

Many attempts were made to reduce rents, or to remit payment for a year, but the rich tenement owners opposed these proceedings and won

places from which comes the larger proportion of tuberculosis. In the Johnstown investigation of infant mortality the death rate of infants was found to be directly related to housing conditions, and these, of course, depend upon the mother's or the father's wages. Given the income of a number of families, one could predict the approximate infant death rate. The death rate was higher in dirty homes than in those that were clean, and still higher in those that were both dirty and damp.

Crowding and Sickness Coincident

In a certain American city of 500,000 population, a number of pin maps were made to indicate the location of cases of sickness. It was found that the pins put in the maps to show the location of insanitary and overcrowded homes went in at the same places as the pins for sickness. In the well-housed districts, the death rate was thirteen per 1,000, in the badly housed it was nineteen per 1,000. The maps also showed that crime, delinquency, drunkenness, and insanity occurred chiefly among the badly housed.

This is the tale of a single city; but the conditions are duplicated in hundreds of other cities. The facts show, though imperfectly, the price that any city must pay for the neglect of the decencies of its housekeeping and the consequent wastage of its human values. The money spent for charity, for hospital care, for crime, pauperism, etc., would, in a few years, rebuild these degenerate districts and restore to industry and decent living those who are now a deadweight to the community and a menace to its good order and its morals.

Slums Not in Cities Only

Bad housing is not confined to cities; it is found in villages and on farms. Health authorities say that much of the typhoid fever of the cities is contracted in villages or on farms, the victims of the infection going to the city before or immediately after the development of the disease.

There are slums in the country because slum means dirt, neglect, poor ventilation, poor food and clothing, and overcrowding; and all this is not infrequently found on farms, where the old oaken bucket of fond memory may dip contaminated water from the well, and where cows that "wind homeward o'er the lea" give milk that from dirty hands, may carry typhoid or tuberculosis.

The Wisconsin Anti-Tuberculosis League found that in some country districts the death rate from tuberculosis exceeded that of Milwaukee, the largest city in the state. In Minnesota it was found that there was much overcrowding on



One ill-kept room that was used as bedroom, kitchen, pantry, and parlor.

in every contest. Julius Caeser, during his reign, decreed a universal reduction of rents. Cicero, who had houses to rent, spoke out in quite modern language. He said: "They are to live free on the prosperity of another . . . what is that but to take away his property from him in order to give to a stranger." Poor transportation and high prices of land made tenements possible. The conditions that produce this state of affairs in our modern cities, produced it in Rome.

Every year in the United States the following average number of deaths from communicable diseases are reported, and this is only a partial list:

Measles	12,000
Whooping cough	10,000
Scarlet fever	9,000
Diphtheria	18,000
Tuberculosis	150,000

These are house diseases in the sense that the house is their usual breeding place though it is, of course, quite possible to contract them or any disease out-of-doors.

Tuberculosis is a house disease. The bacilli that cause it live in dark corners, in damp houses, in ill-ventilated homes, in filthy homes, in overcrowded homes, in cheerless homes, in homes of poor food and scant clothing—these are the

farms, and that as much tuberculosis existed among these people as in the overcrowded quarters of cities. It was found that four, five, and sometimes nine people slept in one room of a farm house, while there were several rooms in the house vacant. Presumably this was for the purpose of saving fuel.

Dr. Bashore, inspector for the Board of Health of Pennsylvania, has found similar conditions in the country districts of that state. One house, during a period of forty-nine years, had sheltered six different families and every family had one or more cases of tuberculosis while in the house. This was a large, pleasant-looking farm house, but lack of intelligent care had made it essentially a pest house.

Death Rate in Degenerate Houses

In Finsbury, a crowded quarter of London, a million people, chiefly families, live in houses of two rooms or less. The sickness occurring in this quarter is in direct proportion to the overcrowding; given the room space and size of families one could predict approximately, as at Johnstown, what the death rate would be. Relative to the kind and amount of room furnished, the owners of degenerate houses receive a much larger rent

is giving a prize to the owners for overcrowding the unfortunate, and for maintaining that which is a menace to the health of the neighborhood, while their competition with the honest landlord is a standing injustice.

Disease Stalks From Slums

People who live in decent houses come in contact in many ways with those who live in disease-breeding hovels. These latter come as messengers to doors of healthy homes. They help in canneries where fruits may be infected; they handle foods that are sold in the market; they make wearing apparel; the traveler may handle after them towels, dishes, faucet handles, and when infected, wonder where the infection came from. The very poor who are badly housed are shorter in stature and weigh less than the prosperous members of the community. Young people living in overcrowded quarters are stunted in growth and do not develop so well mentally as those under better conditions. The vital resistance is lowered and there is not only more sickness among this class but it is more serious. We should expect to find what we do find in cities like Glasgow, London, or New York—that in the slum districts the people are dwarfed physically and are more likely to be mentally degenerate.

Physical degeneracy, due to bad housing conditions, has been observed in all cities where investigations have been made. Children living in one-room tenements are shorter and weigh less than those living in two-room tenements; and when families have three rooms or more the height and weight of children are greater. It is said that two-thirds of the cases of delinquency among Chicago children come from the badly housed districts, and an equal proportion of the shiftless mothers and deserting fathers come from the same districts. Horsfalls says that in England the chief cause of poverty is bad housing. Of 1,000,000 British mothers 95,000 lose their babies before the age of one year. A commission reported that the two major causes are poor food and wretched housing.

The Real Cost of Crowded Quarters

There are about 30,000,000 wage earners in the United States. As nearly 10 per cent of their time is lost in sickness, and as it appears much of this is due to bad housing, the cost of the latter to this class alone mounts to the region of ten figures. The housing problem in the city is largely a question of finding a home for the wage earner. Good housing for the wage earner is rendered difficult because of the cost of land and building.



A Picture with a Moral. The best type of citizenship cannot thrive where the years of childhood are spent in unhealthful conditions.

than do those who rent sanitary houses. The honest and careful landlord suffers from competition with the man who takes advantage of the misfortunes of the very poor and charges high prices for slum quarters. These degenerate houses, originally built for one, two, or three families, are later occupied by twice, or even five times as many families. The rent of the buildings is relatively high and the repairs a mere fraction of that of decent houses. The community that allows such buildings to be occupied

J. G. Schmidlapp, of Cincinnati, who has devoted much attention to building houses for wage earners, has suggested the following weekly budget for that class: One day's wages for rent; two days' wages for food; one day's wages for clothes; one day's wages for extras; including light and fuel; one day's wages for profit and pleasure. He says the disposition of this last day determines whether or not the wage earner is to become an investor, as most of the fortunes of this country began in the saving of a few dollars per week. Mr. Schmidlapp says the unskilled wage earner should be able to procure a home for not more than \$1,200, with at least five rooms, one of which should be a bathroom. The often repeated charge that the poor will use a bathroom for a coal bin has been abundantly disproved by the experience of Mr. Schmidlapp, General Sternberg, of Washington, and Mr. White, of Brooklyn.

Housing Laws and Public Health

In every city in the world where sanitary homes have been provided for the workers, the death rate has been lowered. New York City furnishes an illustration of what housing laws may do in improving the public health. The first tenement house law of New York City was passed in 1867. At that time the death rate was thirty-five per thousand. Five laws have been passed down to 1910, each law more stringent than the previous one, and the enactment of each resulted in a reduction of the death rate. It slid down from thirty-five per 1,000 through 26, 22, 19.6, 16.4, and in 1916 was still lower—15 per 1,000. As Alfred T. White, of Brooklyn, has said, it would not be fair to credit all this reduction of the death rate to the housing laws, but they were certainly a large factor. New York's present population is 5,200,000. The difference between the old death rate of thirty-five and the present of fifteen means a saving of 100,000 lives each year. This is the measurable result of better housing; but the invisible, imponderable result, hundreds of thousands of people who have had better homes and are healthier, happier, and of more value economically, is another and probably more important consequence of the better housing.

One of the worst features of the slum, or near-slum, is the effect upon the young. The children who die there because of the unhealthy conditions at least escape the depravity of those who live. Parents who have had a discouraging struggle with years of unrelieved poverty in the over-crowded quarters of the city, have little time or energy for healthy companionship with their children. Their cheerless, dungeon-like homes are devoid of everything that childhood craves, and

the children are driven to the street or the gilded hall for companionship and amusement. Thousands of boys and girls whose homes are unclean and cheerless find their only playground in the



The above photograph from the files of the California State Board of Health depicts some of the unbelievable conditions which were found in housing survey in the big cities of the state. The beds are placed two-tier deep along the back wall. Light and ventilation were almost totally absent.

street, where many of them are familiarized with vice, and trained in crime. If slums were abolished, the human material that they supply to jails and penitentiaries could be saved to the healthy uses of society. So long as overcrowded and foul homes are permitted, so long will degraded humanity issue from them to prey upon the community.

The child is the future in the making. By the life and the training that it gives the young, society largely determines what this future shall be. People in their mature years usually give to society the kind and quality of service that in their youth it fitted them for. Young humanity is a tender growth and definitely responds to its



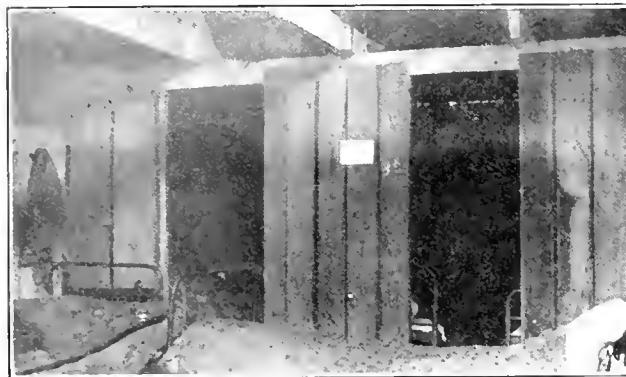
The clothes line on the roof suggests that a home must be nearby. The home is in the foreground, under the California sky. The wagon bed, a dry goods box, and two sheets of roofing iron were the living quarters of the old man in the photograph.

environment. The hundreds of thousands of children in America that daily go out from homes that are below a decent standard will avenge society's neglect in their unfit and incompetent lives. It is not encouraging for the future human quality of the nation that from 60 to 70 per cent

of school children suffer from physical ailments and that 30 per cent of our young men fail to pass the examination for active service in the army. Something is wrong with the homes of a country that produce results of which these are samples.

Economic Phase of the Question

The working capacity and economic value of the individual are reduced by bad conditions of home life. One who lives under insanitary conditions or cheerless home influences cannot do his best work. The interest and animal vigor necessary for good work does not thrive in forbidding surroundings or squalid quarters. The clean and cheerful home adds to the health and physical capacity of its occupants. It does more than this; it has a moralizing and spiritualizing influence that increases the social and industrial value of the individual. Home influences belong to the visible, imponderable things of life. Man carries



Five beds in the space which one bed should occupy.

his home in his mind, and whether he manages a bank or runs a peanut stand, this shelter in which he spends half his life to a large extent determines his health and character.

The Value of the Individual

The well-meaning but incompetent thousands whose lives are tragedies of failure and who pass to the lowest stages of poverty form an ever increasing class. The proportion of the very poor to the whole population is growing. As a consequence the slum is not disappearing; it is spreading. In every city and most villages of the country are the multiplying hovels of the ignorant poor, and it is from such homes that the greater part of disease and crime of the future will come. This does not relate to the healthy poverty that disciplines and stirs to effort, but to the poverty of defeated lives that lessens the resistance and dulls the moral sense. The feeble attempts made to help this class after neglect has allowed the evils to grow, the charities that are only an ambulance service that picks up the injured, these

are chiefly conspicuous for waste of effort and waste of money.

In this age of colossal enterprise and mobilization of workers there is danger that consideration of the individual will disappear in the fury of the industrial struggle. Industry finds it more profitable to deal with men in the mass, as in this way larger results are had and what is called progress is hastened. Armies of men lift great buildings to heights that out-tower the steeples, or they work on railroads or in factories where the first interest of society should be in the human product, healthier men, and better citizens; but interest in the material product overshadows consideration for the individual worker. The important question for society is: How are these workers housed and fed? For the ultimate value of the work lies less in the product than in the workers. Will these people be able to equip their children for good citizenship so that they may add to the social forces of the next generation? The problem of housing concerns itself particularly with this class who do the necessary work of the world and who also contribute a proportionately larger share to the population.

Good Housing in Britain

The garden villages of Europe, and especially those of England, have shown what good housing and a general healthy environment will do to improve the physical condition and the working capacity of laboring people. For more than a generation British cities have been carrying out municipal housing schemes. The earlier work was in the destruction and rebuilding of slum houses. Later, garden villages were associated with manufacturing enterprises and have become really separate and independent communities.

Years ago the authorities of Liverpool began to destroy the buildings in one of the city's worst housed districts. These have been gradually replaced by well-built homes. Up to 1914, the city had spent several millions of dollars on the scheme, and had put back into the new houses the people who had formerly lived in the slum quarters. The district has parks, playgrounds, swimming pools, gymnasiums, and, with better homes, a class of healthy young people is growing up where formerly slum wretchedness and crime were the regular products.

The year before the work of house destruction was begun there were 204 prosecutions for crime in this district. After the new houses were built and the playground and park life had got into the blood of the boys and girls, there were four prosecutions for crime in one year. This is but one item and is a rough, but significant measure.

In the garden villages, in order to give room for sunshine and air, the number of houses is limited to from eight to twelve per acre. In London, Birmingham, and other cities the number of houses is from thirty-five to fifty per acre, with the result of land over crowding. In the garden



Not the kind of hotel that most of people desire, but a hotel nevertheless at least it bore the name of hotel until the health authorities of California insisted on decent accommodations being provided for the guests.

villages, two-thirds of the land is reserved for parks, playgrounds, and swimming pools. The rent is low, and in most of the villages, garden land is furnished where many residents raise vegetables in amount sufficient to pay rent.

The health records furnish evidence of what these villages do for the residents. The general death rate in England and Wales is 14.6 per 1,000; in Bourneville, one of the garden cities, the death rate is 5.7 per 1,000. The infant death rate is 62.4; that of England and Wales is 117.7. At twelve years of age a boy in Bourneville weighs eight pounds more than a boy of the same class in Birmingham, and is more than two inches taller. In Port Sun Light, another garden village, the death rate is eight per 1,000. A boy in this village is, at fourteen years of age, six inches taller, and weighs thirty pounds more than a boy of the same age and class in Liverpool, six miles away.

These results are not obtained by any special methods of feeding or training. These boys are the children of humble people who, living under proper conditions, are able to give their children good food and outdoor life.

The garden villages afford people, old and young, normal surroundings and nothing has been done here that might not be accomplished anywhere else. It is simply a matter of decent housing, producing happiness, health, and efficiency. The lesson of the garden village is that a sanitary and attractive home can be provided for the wage earner at an expense that is within the limits of his income. If a boy in a garden city

at fourteen years of age is five or six inches taller and weighs twenty or thirty pounds more than the boy in the slums, it is only because he has had the food and air and sunlight that all should have. The better opportunities that the poor man has in the garden cities make the difference shown between the life of poverty that is underfed and poorly clothed, and the life of that easily procured and simple abundance that is everyone's right to have.

The poor man is limited in his choice of a home location, as the price of land and the expense of building compel him to make a home not where he would, but where he can. His housing is thus determined for him by economic conditions, and among other disadvantages usually he has to pay one-fourth or more of his income for rent when the right proportion is only one-sixth. If the item for rent is out of proportion to the income, he must reduce expenses in other ways; if this deduction is made, as it would be probable, from food and clothing, having a better house may result in injury. This serves to show how the problem of good housing is more than the house, that it relates to economic conditions, to the wage scale, and to the skill of the workman. If his skill falls below a certain standard, he is in danger of being pushed over into the slum or near it, and despite years of honest effort, and because of overcrowding or other bad conditions that he did not cause and cannot remedy, he and probably his neighbors may become a menace to the health of the community.



A habitation which could scarcely be termed a house.

In cities where slum houses have been destroyed and good houses built to replace them the result has generally been that the previous occupants have established other slum quarters elsewhere. The slum resident is always either underpaid, or inefficient, or both; and if he is to have

that social help and spiritual transformation that lifts him above slum life, he must be cured of the slum disease, and acquire the habit of decent living.

Modern conditions create common interest



Before the removal of a building from the vacant site in the foreground, the dwellings shown in the picture were without back yards, except for narrow courts. Children living in the buildings had their playground in the street.

among people who may never see each other. The age multiplies points of contact; human interspaces grow smaller. A man's health and his housing are not individual affairs, for the community is a social unit and whether one cares to concede it or not he can not afford to be indifferent to the human conditions about him. Diphtheria, tuberculosis, and other contagious diseases are house diseases, and insanitary homes are culture centers from which they spread. A few years ago 93 people in a California town were infected with typhoid fever by a person in good health. Those who live in places where disease breeds touch hands with those who live in the best homes. Any expense necessary to make a community a safe, healthful place to live in is a good investment. It is an investment in human life, in more healthful living, in better citizenship in race conservation, all the more valuable as an investment because it cannot be expressed in dollars and cents.

Physical Basis of Power

The future control of the world will be to the strongest race. As in the past the dominating races have been physically the strongest, so in the future the strongest races will be those that control. Those who are interested in better housing may have a share in making a more vigorous race by helping to give men better homes. At near view the work may seem commonplace, for it deals with homely problems and forbidding conditions. In its deeper meaning it promises a finer

quality of humanity. For this to appear to the home visitor or the worker in the slums requires vision, but without sympathetic insight into the lives of others, such work will never yield the best results. In this and in all other work that has for its object the remaking of the lives of individuals, and ultimately of the race, we need a large patience and a vision that reaches beyond the horizon of the present time.

NATIONAL TUBERCULOSIS ASSOCIATION

The fifteenth annual meeting of the National Tuberculosis Association was held at Atlantic City, June 14 to 17, 1919, with nearly 700 persons in attendance. The program was conducted in four sections, pathological, clinical, sociological, and nursing section. The pathological and clinical sections represented the work of the laboratories and specialists and made a decided contribution to the scientific literature of tuberculosis. The war aspects of the problem and the lessons learned from the war were treated in a number of papers. Discussion of the national health program, the relationship between the tuberculosis movement and the general health campaign and the European experience formed the subject material of the general sessions.

The sociological section discussed the present status of the draft rejects, occupational therapy for tuberculous men, vocational retraining and rehabilitation, and the removal and relief of poverty as factors in the prevention of tuberculosis by the preventive health agencies and by social insurance.

The nursing section dealt with the development of nursing service, the education of public health nurses for tuberculosis work, and the methods of public education to secure support for tuberculosis work.

The address of the president, Dr. David R. Lyman, was devoted to the relationship of the state and national association to the other agencies in the tuberculosis campaign. Dr. Lyman stated that while the war had clearly shown the triumph of modern medicine in the control of acute infectious diseases, it had also shown with equal clearness the great inroads that chronic diseases were making in our national economy. In the attack on tuberculosis, Dr. Lyman regarded as of first importance the cooperation of the national organization with the established health authorities, local, state, and national. He felt this was essential because these authorities had a more comprehensive knowledge of local needs. He called attention to the fact that the national association has for years advocated the creation of a division of tuberculosis in the U. S. Public Health Service.

Mr. John A. Lapp, managing editor of *Modern Medicine*, contended in his address on social insurance that there can be no solution of the problem of tuberculosis among working men and women without health insurance. He suggested health insurance as the independent, self-respecting means as against charity. He believes that a proper plan of health insurance for the tuberculous should provide for payments without limitation as to time and should provide for complete medical and sanatorium treatment as long as the patient requires it.

Bad teeth very often cause rheumatism and joint trouble, according to the United States Public Health Service, which advises that an x-ray examination of the roots be made to learn if they are diseased.

HEALTH PROMOTION WEEK IN CHICAGO

During the spring the city of Chicago held a Health Promotion Week in which school children, teachers, health officers, nurses, and departments of the city government



Ready for action. A team of health promoters who helped clean the back yards, cellars, and alleys in Chicago during Health Week.
(Copyright by International Film Service Co.)

joined hands for a housecleaning. But Chicago's streets and alleys will need another "clean-up" in July on account of the suspension of work during a strike by city employees in the street cleaning and garbage disposal departments.

Commissioner of Health John Dill Robertson, under whose direction Health Promotion Week and the clean-up campaign were held, published the following program for the seven-day crusade against dirt:

Sunday—Health Sunday, cleanliness is health godliness.
Monday—Dental day. The care of your teeth is important. It pays to consult your dentist often.

Tuesday—Cellar and back yard day. Don't be content with putting up a good front—clean up the back yard as well.

Wednesday—Clean up and paint up day. Attractiveness as well as cleanliness counts in adding to the comfort and pleasure of our surroundings. Paint both brightens and cleans.

Thursday—Screens and garbage day. There are many kinds of flies and all are dangerous. Get your screens in now. Keep that garbage can covered at all times.



The illustration shows what happened in hundreds of Chicago back yards during Health week, when the teams got into action. (Copyright by International Film Service Co.)

Friday—Clean milk day. Milk is the baby's food; keep it cool and protect both against the nasty, dangerous fly.

Saturday—Clean food day. Conserve both your dollars and your health by trading at the clean food store.

NATIONAL CONFERENCE OF SOCIAL WORK

The National Conference of Social Work, held in Atlantic City June 1-8, was replete with interest to the workers in the health and hospital field. The subject of better health and the means of attaining it were discussed in a broad, constructive way not only in the "permanent" section on health, but also in several other sections, notably those on mental hygiene and children. Moreover, Miss Julia C. Lathrop, chief of the Children's Bureau, U. S. Department of Labor, in her inspiring presidential address on "Child Welfare Standards—a Test of Democracy," stressed the necessity for the provision of adequate care for the health and welfare of all mothers and children as an integral part of the general welfare.

The division on health, with Prof. C.-E. A. Winslow as its chairman and with a well-developed program, conducted a series of informing and stimulating meetings. The standard of living was discussed in relation to tuberculosis, medical and nursing care, infant mortality, venereal disease, family food supply, housing and the health hazards of industry. Mr. Karl de Schweinitz, secretary of the Philadelphia Society for Organized Charity, in his paper on "Sickness as a Factor in Poverty," brought out some startling figures as to the importance of the sickness factor in terms of days and money lost in the course of a single year by the people of this country. Dr. Royal Meeker's paper on "What is the American Standard of Living?" combined wit and humor with valuable statistical data. He declared there was no single standard of living, but many standards, as was abundantly attested by the statistics gathered by the Bureau of Labor Statistics, of which he is the head. Dr. Edward T. Devine spoke on "The Outlook for the Future."

The new officers of the conference are: President, Owen R. Lovejoy; vice-president, Gertrude Vaile, Denver; Rev. John A. Ryan, Washington; Robert W. Kelso, Boston; with William T. Cross continuing as secretary. Mr. George T. Nelbach, secretary of the committee on tuberculosis of the New York State Charities Aid Association, was elected chairman of the health section, and Dr. C. Macie Campbell, Baltimore, of the section on medical hygiene.

The program included speakers and subjects, as follows: Dr. Charles J. Hatfield, managing director, National Tuberculosis Association, "The Economic Factors in Tuberculosis"; Bailey B. Burritt, general director, Association for Improving the Condition of the Poor, "Raising the Standard of Living as a Weapon in the Antituberculosis Campaign"; Dr. Lee K. Frankel, third vice-president, Metropolitan Life Insurance Company, "How Far Does the American Family Budget Provide for Necessary Medical and Nursing Care?"; John A. Lapp, managing editor of MODERN MEDICINE, "Health Insurance as a Means of Securing Medical and Nursing Care"; Dr. C. C. Pierce, assistant Surgeon General, Public Health Service, "Federal Campaign Against Venereal Disease"; Dr. Thomas Adams, town-planning adviser to the Commission of Conservation, Ottawa, Canada, "Housing Development as an After-War Problem"; Dr. Irving Fisher, Yale University, a plea for humanizing industry; Dr. René Sand, professor of social and industrial medicine in the University of Brussels, "Minimum Standards of Child Welfare."

SICKNESS COSTS AND THE FAMILY BUDGET

By LEE K. FRANKEL, THIRD VICE-PRESIDENT METROPOLITAN LIFE INSURANCE COMPANY, NEW YORK CITY*

ATTEMPTS to study family expenditures to determine the amounts necessary for various items in the budget have been made at frequent intervals for over two hundred years. As early as 1672, William Petty made an estimate of the cost of living of labor in England and Ireland. Similar studies were made by Vanderlint in 1735, by Massie in 1756, by Cantillon about 1750, and by Edward Atkinson, who presented to the Aldrich Committee in England in 1892 an estimate of the expenditures of a laborer's family with an income of \$500.

All of these studies as well as later ones are mentioned by Chapin in his "Standards of Living in New York City" and need not be discussed further at this time. Chapin's book was an elaboration of the report of the Committee on Standards of Living appointed by the New York State Conference of Charities and Corrections with the writer as chairman.

Home Finances a Complex Problem

I remember well the difficulties which were encountered in making this investigation. The investigators who were sent into the homes had to receive the most careful instruction in order to qualify them for their task. Even with this, much difficulty was experienced in educating families properly to carry out the instructions which were given to them. The schedule which was used by investigators was quite an elaborate one. The experience which I have had with much more simplified schedules leads me to believe that the average workingman's family finds it exceedingly difficult to keep an accurate account of its daily expenditures and to enter them properly in the schedule. An experiment was made quite recently in a girls' high school in New York City to ascertain how well girls of this grade were competent to fill out a quite elementary schedule. Out of more than fifty schedules submitted to the teacher, practically none was correct in the final addi-

The Metropolitan Life Insurance Company has sought to determine what amount should be provided in the family budget for necessary medical and nursing service.

That insufficient allowance is made, or none at all, by many families is shown by the fact that in every income group, the sums paid to physicians are paid by a few of the number. The doctor never enters the homes of many families, whose budget makes no allowance for sickness costs or medical attendance.

The expenditure for medical service in several income groups, up to \$2,500 averages from 3 to 5 per cent.

tion. The data given by Chapin are, however, not applicable to present day conditions. The cost of living has changed so considerably since the Chapin studies that they are of comparatively little merit to-day. Certain recent studies are, therefore, much more to the point as an indication of the extent to which the average family budget provides for necessary medical and nursing care. It is assumed that under medical care is included services of dentists, oculists, and opticians.

4 Per Cent of Income, the Average

The Industrial Welfare Commission of California published in the year 1917 the records of one year's expenditures of 600 working women in San Francisco and Los Angeles. The records were classified according to their earning capacity and occupation. The amount spent by each group for medical services was approximately 4 per cent of the income. It should be noted that about half of the total amount expended for physicians and medicine was paid out by twenty-one of the entire number. Three hundred and one, or more than 50 per cent, apparently had no expense for service of this kind.

Similarly, in a group of 251 laundresses, the expenditure for medical and dental care amounted to 5.1 per cent of their aggregate earnings. The bulk of the cases in this group had an actual income of from \$350 to \$500 per annum. The average annual expenditure for medical and dental care was approximately from \$18 to \$25 per annum.

The Commission also presented the records of 264 waitresses. In this group, 3.9 per cent of the aggregate earnings was expended on medical and dental bills. These women belonged to a waitresses' union, which employed a physician to care for them. Apparently service was obtainable at a lower cost under this contract plan. Whether the service was equally good, however, is not stated. The larger number of women in this

*A paper read before the Health Section of the National Conference of Social Work, Atlantic City, N. J., June 5, 1919.

group were earning between \$500 and \$600 per annum. The average amount spent for medical and dental care was approximately \$20 to \$25 per year.

The United States Bureau of Labor Statistics has recently made studies of the expenditures for medical and dental care by workmen in certain industries. The data has not yet been published. It is due to the kindness of Dr. Royal Meeker, Commissioner of Labor Statistics, that certain of the figures are given here. One of the studies for the year ending March 31, 1918, made among 508 families in Cleveland, Lorain, and Toledo showed an average expenditure of \$41.79 for medical care and \$8.59 for dental care. Twenty per cent of the families in this group spent less than \$10 for medical care and more than 17 per cent between \$10 and \$19. At least two-thirds of the entire group spent less than \$40 per year for medical care. In Columbus, Ohio, a similar study of 211 families showed that \$42.41 was spent for medical care per family and \$6 for services of the dentist. Nearly 20 per cent less than \$10 per annum, and nearly two-thirds were in the group under \$40. The Columbus figures are thus in close agreement with those for Cleveland, Lorain, and Toledo.

Families Make Use of Clinics

A similar study under the auspices of the United States Bureau of Labor Statistics was made in the District of Columbia. Here the average expenditure for medical care during the year 1916 was \$37.75. For 230 colored families, the amount was \$20.19, while for 692 white families, the amount was \$43.59. These averages are in fairly close agreement with the data obtained in the Ohio studies. The Washington studies, based on income, gave data corresponding to those obtained in the studies made by the New York Committee on Standards of Living as will be seen from the table below. These figures are for the white families:

INCOME	EXPENDITURE
Under \$600	\$12.83
600 to \$ 900	25.52
900 to 1,200	42.31
1,200 to 1,500	43.16
Over 1,500	59.57

It is quite probable that in Washington, as in New York, families of lower income utilized the agencies in the city such as hospitals and dispensaries, where service was given either free or at a nominal cost.

Another study made by the Bureau of 301 families in Philadelphia, containing on the average five persons per family, showed an average expenditure for medical care of \$57.92. This is a little more than 4 per cent of the average annual

income. These figures, like the Washington figures, show increased expenditure along with increased income. The data submitted shows an average expenditure ranging from \$24.13 for the group with an income under \$900 to an expenditure of \$141.57 for the group over \$2,500.

Medical Care Costs \$23.18 in \$900 Group

In Boston the Bureau studied 407 families. These, too, averaged a little more than five persons per family. The average expenditure for sickness was \$49.76, or about 3½ per cent of the average annual income. Here, again, the expenditure varied with income. In the group under \$900 there was an average outlay of \$23.18. In the group over \$2,500 the average expenditure was \$67.42.

In a group of seventeen Pittsburgh and thirty New York families studied by the Bureau, whose income ranged between \$1,100 and \$1,399, the average amount expended for sickness was \$42.70. In a similar group of fourteen Pittsburgh and twenty New York families, with incomes ranging from \$1,400 to \$1,699, the average for sickness was \$38.60. In a group of sixty-two families in ten representative cities of the United States, with incomes varying from \$1,700 to \$2,100, the average amount expended was \$73.28. In a group of eighteen families in eleven representative cities, with incomes ranging from \$2,100 to \$3,100, the average expenditure was \$57.04.

It will be seen from the data submitted how difficult it is to determine to what extent the American family budget provides for necessary medical and nursing care. None of the studies convincingly prove at what point in the income the family finds itself compelled to make use of gratuitous medical service. In fact, it is well known that even among the poorest there are those who, in an emergency, will use their last penny and, if necessary, borrow from friends and acquaintances to obtain the highly prized services of medical specialists. For these reasons the data given are indicative only. It may be fair to assume, however, from the more recent investigations, that the average expenditure of a family in the \$1,000 income group may vary from 3 per cent to 5 per cent of the total income.

Comparatively few of the budgetary studies thus far made give sufficient data on the cost of dental, optical, and nursing care. This is not the fault of the investigation. It is due to the fact that service of this kind, for the large masses of people, is still in its infancy. The education of the people in oral hygiene is a matter of very recent growth. The same is true of the care of the eyes. Nursing service in the home for the self-sustaining and self-respecting workman is ex-

ceedingly limited. The services of the private duty nurse cannot be considered by the average workingman's family owing to the cost. Visiting nurse service, until very recently, has been primarily for the poor. Notwithstanding the fact that within the last decade hundreds of visiting nurse associations have come into existence in the United States, the great majority are still on a semi-philanthropic basis. One of the greatest needs of the day is an adequate bedside service through visiting nurses for workmen who do not wish to receive charity.

Families Without Nursing Service

As an indication of the cost of such service, the experience of the Metropolitan Life Insurance Company is probably most indicative. In the year 1918, the company nursed 290,882 policy-holders, making 1,431,085 visits. The average cost per case with a physician in attendance was a trifle over \$4. Since the cost per visit was 51 cents, the average patient received approximately seven or eight visits. The Bureau of Labor Statistics in its Columbus, Ohio, studies showed that out of the 211 families investigated 174 families had no disbursement for nursing service. This does not mean that these families did not require such service. Six of the families spent less than \$10 per annum; fourteen families spent between \$10 and \$19 per annum; six between \$20 and \$30 per annum, and the other eleven families spent amounts varying between \$30 and \$80 per annum. In the studies made in Philadelphia and Boston, the average amount spent for nursing service in all income groups was \$2.50. In Philadelphia this figure was fairly constant in all income groups up to \$2,500, where the average was \$5 per annum. In thirteen families in Boston, with an income of over \$2,500 per annum, no family had any expenditure for nursing service.

Average Sickness of Individuals

Probably some light may be thrown upon the subject if we study it from a different angle. In recent sickness surveys made by the Metropolitan Life Insurance Company, it was shown that the average individual is sick seven days per annum. These surveys included, however, only individuals who were sufficiently ill to be unable to work. It can be assumed that all of these individuals should have been under medical care. The surveys showed quite clearly, however, that in a number of communities a considerable proportion of those disabled by illness were receiving no medical attention whatever.

If we take as our unit the average family of five, consisting of father and mother and three children, and use the above average of seven days'

illness per member, we may assume that in such an average family there are thirty-five days of illness per annum. On the assumption that half of the incapacitated are chronic invalids who do not require the daily visit of the physician, it is probably not an exaggeration to assume that the thirty-five days of illness would require seventeen visits. The cost of a physician's visit in the home has increased along with the other necessities of life. It is doubtful whether in the large cities physicians' services can be obtained today under \$2 per visit. This would mean \$35 per annum for physicians' services alone. It is true, of course, that many of these patients are in hospitals and institutions. The cost of this hospital service would probably run as high as the cost of the physicians' visit to the home. It is quite unlikely that the average modern hospital can give service under \$2 per diem. It is immaterial, of course, whether such service is given free or is paid for. It must be included in the amount which should be provided in the family budget for self-sustaining families. Some of the incapacitated who are able to be up and about will make use of dispensary service. According to the figures of Mount Sinai Hospital in New York, the consultation visit in 1918 cost the institution \$0.45. The average patient makes from three to four visits. In the Massachusetts General Hospital, the cost per consultation is approximately \$0.50.

Extra Expense for Dental Care

In this calculation no provision has been made for dental care of the members of the family. In the opinion of competent oral hygienists, prophylactic care should be given to the teeth at least twice a year. Assuming that it were done only yearly, the expense for this would be at the lowest possible estimate approximately \$10 per annum. Nursing care given by a visiting nurse would vary from \$10 to \$20 per annum. It is difficult to make any estimate of the cost of eye-glasses and the care of the eyes generally but it would be safe to assume an expenditure of \$10 per annum.

I recognize quite fully that these are mere estimates and that they may fall very wide of the mark. On the other hand, these estimates combined with the investigations previously made, indicate quite clearly that an allowance of \$50 per annum should be made in the average American family's budget for medical, nursing and surgical care. It should be remembered, of course, that these are averages. Some families may go through the year with practically no expenditure; other families, on the other hand, may in an unfortunate year have an expenditure running into hundreds of dollars. Covering a period of years, however, it is fairly certain that the average family would

average a minimum of \$50 a year. It would not be difficult to increase this average to \$60 and even to \$75 per annum.

From what has been said, I think it will be realized that at the present moment we have not

sufficient data for a definite statement of the amount which should be provided in the family budget for necessary medical and nursing care. It would be highly desirable to have an exhaustive study made to determine the facts.

FREE DENTAL CLINICS FOR RURAL SCHOOL CHILDREN IN NORTH CAROLINA

BY GEORGE M. COOPER, M.D., DIRECTOR, DEPARTMENT OF MEDICAL INSPECTION OF SCHOOLS, RALEIGH, N. C.

LESS than one hundred years ago the science and practice of medicine was regarded by the average man as more or less on a par with the training of the barber. Only a few short years ago in almost any crowd someone was ready to express the opinion that the dentist and the dental profession were about on a par with the blacksmith. Happily all such ideas together with the causes which prompted them are passing away.

A little more than thirty years ago the empire of Japan made compulsory the medical inspection of school children by competent authorities. In 1907, after the Boer War in South Africa, the British Government passed a compulsory medical inspection act for the British Empire. In both cases this was not done until thinking people of the two countries had been aroused to the necessity for the physical education of the people, and the care of their health had been recognized just as necessary as their mental development, and that, indeed, the safety of the Empire depended upon the physical stamina of the people.

In America medical inspection of school children has been somewhat a patchwork affair. Here and there, in some cities over the country, a worth-while system has been developed. Few of the states, however, have enacted state-wide laws on this subject.

In North Carolina the General Assembly of 1917 enacted a law requiring the teachers to do a preliminary physical examination for each child

in the schools of the state once every three years, their findings to be recorded on the card prepared by the State Board of Health and approved by the Department of Education, all executive responsibility for the performance of the work being left in the hands of the State Board of Health. For some three years previous to that time, the State Board of Health had supervised the inspection of many thousands of school children. Through their press service many facts were given to the people concerning the physical condition of the children in the schools of the state. What in the opinion of many is regarded as the most forward step of any state in the Union on this subject was taken when the legislature of



Dentist at work in the permanent Dental Dispensary at the Court House in Rowan County, N. C., where free dental service is provided for all the school children of the county.

1919, assembled in January, greatly broadened and strengthened the law governing the physical inspection of school children and appropriated a

fund of \$50,000 per year from the public school funds to be used by the State Board of Health in the examination and for the dental treatment of school children.

Provide Records But No Remedy

Practically everywhere in the United States, with the exception of some of the more progressive cities, the medical inspection of school children consists in the examination and the card indexing of the children, that is, the defectives, with the simple notification to his parent to have the defect remedied. Some take the advice, many are indifferent, and a large percentage are unable to have anything done. In the experience of the writer as a county health officer, as a medical inspector, and as an official of the State Board of Health in the thousands of examinations which had been made for school children in this state in the routine manner, the great need that something more definite and specific be done for these multitudes of children remains constantly in mind.

Therefore, when the law of 1917 was put on the statute books and the director of this bureau was charged with the responsibility of executing the law and of really doing something for the defective children, plans based on the experience of many years were immediately formulated for a systematic remedying of the conditions found. It was natural to begin on the most outstanding defect; so, when it was known that not less than 80 per cent of all the school children in the state needed dental treatment, and considered of paramount importance to the child's future health and happiness that proper care for the teeth be given in time, it was easy to decide what to do. The first point to be settled was, of course, obtaining the funds and deciding whether to make the clinics free or to attempt a self-sustaining plan. Being strongly of the opinion that treatment for any physical defect should be as free to a school child as the public school itself, this point was

easy to settle. Therefore, later, when the clinics were open, the service was made free to every school child between the ages of six and twelve years whose teacher had made the proper preliminary examination and reported as required by law. No distinction as to race, sex, color, class, or financial standing was made. The funds were obtained by appropriating public money, and thus



The children in attendance at the dental clinic shown in this photo came from a distance, some of them as far as twelve miles, reporting at 8 o'clock in the morning and keeping to the minute an engagement made for them six weeks previously. The photograph shows the permanent dental infirmary at Winston-Salem, N. C., for the free treatment of school children of Forsyth County under the age of twelve years. Those in attendance include the county health officer and the matron who brought the children. For the three months ending April 30, 1919, there were 939 children who received free treatment in this clinic.

it was made a business proposition and removed entirely from the realm of charity.

One of the next problems to consider was what would be the attitude of the dental profession of the state toward such a radical departure from precedent. This position was freely and frankly discussed with the dental society of the state, and be it said to their credit that to a man they have loyally supported the work. They were far-seeing enough to know that it not only meant salvation to the health of thousands of children, but that it meant the ennobling and elevation of the entire dental profession, which has already taken place in marked degree.

As previously stated, with the exception of the progressive city work like that of the Oral Hygienists of New York City, the Forsyth Institution in Boston, Bridgeport, Conn., Rochester, N. Y., and Detroit, Mich., no precedent for any of this kind of work was found, nothing whatever pertaining to the solution of the rural problem. The only thing was some experiments made by the Red Cross on a very small scale in one county

in Michigan, and by the Vermont State Board of Health, supported by private donations. The latter two plans were radically wrong in that the Red Cross activities made an effort, according to their report, to single out the children of the



The first day's work of a free dental clinic for school children at one of the rural schools in Lenoir County, N. C.

poorest, while the Vermont work was done by private donation. This is a public responsibility, and should be provided by the tax payers just as is the teaching of arithmetic and spelling.

Organization and Results

To make a long story short, when we began definitely arranging our plans for and inaugurating this work in the early spring of 1918, we found that we were embarking on an uncharted sea. However, the results have a thousand times more than justified the adventure. This kind of work has come to North Carolina to stay. For the benefit of those interested in the details of our methods, the following summary is submitted:

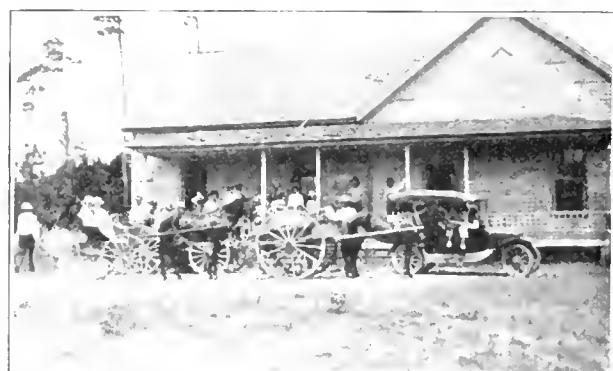
Six dentists who had been recently graduated and licensed to practice in the state, all young

was planned. Each man was supplied with a McConnell folding chair, a foot engine, a student's cabinet, a few simple drugs like novocain, tincture of iodin, oil of cloves, and a full equipment of instruments, such as excavators, elevators, burrs, brushes with pumice, with dental alloys, and the necessary material for the simpler fillings. Each one was placed in an automobile and taken from place to place over the county, and the children were summoned by local agencies. The work was done for children between the ages of six and twelve years only. No synthetic or gold fillings were undertaken, no crown or bridge work done; diseased pulps received only temporary treatment, and root canals were not treated. The work consisted mainly in the placing of amalgam fillings for the six-year molars, and other permanent back teeth, some temporary fillings, silver nitrate treatment, etc., cleaning and extracting when necessary. The educational and prophylactic side of the question was stressed at all times as the most important. The work, ending early in December, resulted in the treatment of nearly seven thousand children in the nine counties. More than 227 dispensaries were held, and over one hundred lectures on oral hygiene made.

Three dentists have been employed nearly all the time since the first of January. Beginning with August 1, this force will be increased to nine, but, as we always prefer to talk about something after it has been done, the result of this year's work will suffice for another story. Naturally in a state with 800,000 school children, more than three-fourths of them needing dental treatment, it is unthinkable that a very large percentage could be reached by nine dentists working all the time, but when the propaganda is spread all over the state and the people have preached in these and other homes in every section knowledge concerning the importance of the care of the teeth, and the fact that the state is sufficiently interested to put up thousands of dollars a year in the effort to supply this care, he is a pessimist indeed who cannot see that the result of the work will have an enormous influence upon the health of the children of this and the succeeding generations.

Creates County Health Committee

The Coe law in Wisconsin makes it mandatory for each county in the state, within two years from July 1, 1919, to employ one or more registered nurses for public health service as supervisors and instructors, who will work under the direction of a Health Committee to be composed of the chairman of the County Board, the county superintendent of schools, a woman member to be appointed by the County Board, the judge of the juvenile court, and the deputy state health officer of that county.



Moss Hill School in Lenoir County, N. C., in which thirty-three children from twenty-three households were given free dental treatment in the Traveling Dental Service conducted in that county by the North Carolina State Board of Health. The illustration shows how families rode to the clinics.

men of high type, were selected to do the work. A plan of campaign running from four weeks to three months in each of nine counties of the state

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., Editor

THE REHABILITATION OF INDUSTRIAL CRIPPLES

A BILL has been introduced into both houses of Congress by Senator Smith, of Georgia, and Representative Fess, of Ohio, providing for national assistance and guidance in the development of vocational rehabilitation of industrial cripples by the states. The bill ought to be perfected and passed without delay in order that the experience in rehabilitation of soldiers and sailors may be fully utilized in this larger problem.

Dr. Frank Billings in a notable paper in the *Journal of the American Medical Association* states: "The application of mental and physical rehabilitation to sick and disabled soldiers by practically all of the nations engaged in the war has proved so successful and beneficial that it imperatively demands application of like measures for the benefit of the disabled of the army of the industrial world."

Two years ago this problem was scarcely thought of. Today it is receiving the serious consideration of medical men, educators, and statesmen. There are some considerations, however, which should be taken into account in making the final draft of the pending bill.

In the first place, the act provides only for vocational rehabilitation without making any requirements for physical rehabilitation even in the case of persons disabled in industry. It must be apparent to everyone that medicine must do its part before vocational education will properly function with the disabled. Much waste would occur if vocational education is not preceded by physical restoration so far as medicine can bring it about.

In the case of persons injured in the course of employment the physical restoration of men should be brought about under the terms of the

workmen's compensation acts. It is the part of the burden which should be borne by industry, and it ought to be required as a part of the workmen's compensation acts before Federal aid would be given for vocational reeducation.

Fortunately the stupid mistake made in the bill introduced a year ago has not been repeated in the present bill, namely, that rehabilitation should be confined to persons injured in the course of employment. The muddled thinking which conceived the idea of providing at public expense rehabilitation for persons injured in industry only, a burden which in justice ought to be thrown entirely upon industry, is hard to conceive.

It is necessary to coordinate the workmen's compensation administration with the educational authorities in a more concrete way than the bill now provides.

The sound principle of grants in aid which has been so successful in the fiscal administration of Great Britain and also in a number of the states, has been adopted by our Federal Government in the aid given for vocational education. The new bill wisely extends that principle to cover the reeducation of cripples. Under the plan the initiative and organization of the scheme are entirely in the hands of the state and local authorities, but they must meet and live up to certain minimum standards set by the Federal Government if they are to receive the support of Federal funds.

The plan constitutes a partnership between the Nation and the states to achieve a great national purpose in which the Nation agrees as a nonresident partner to contribute money, provided the states set up ample machinery to make the gift effective. It is regretted that the bill provides merely for a nominal appropriation. The project is large and it will not be long before several million dollars will be required as the Federal portion of the enterprise.

EDITOR.

WHAT THE SOCIAL WORKER LEARNS FROM THE PSYCHIATRIST ABOUT HER PROBLEM CHILDREN

BY JESSIE TAFT, PH.D., DIRECTOR DEPARTMENT OF CHILD STUDY OF SEYBERT INSTITUTION, PHILADELPHIA

THE social worker, particularly the children's worker, is looking for a new psychology. The psychology she studied in college is somehow unwilling to detach itself from the book. It remains where she found it on the printed page, unrelated to life. What the social worker seeks is a psychology that works; a psychology that she can use to make people over. The youngsters who fill the Juvenile Court, the Children's Aid Society, the truant school, the Society for the Prevention of Cruelty to Children, even the schools, continually present immediate and practical problems in conduct, the solution of which depends upon a psychology that can alter behavior.

At first sight the psychologist with the mental test seemed to promise salvation. And he did help tremendously. He eliminated for the children's worker the hopeless material on which her time would have been wasted and he indicated the presence of intelligence and special abilities or disabilities which gave the basis for constructive work.

After this was done there still remained the problem of an intelligent Johnny who persisted in lying and stealing, or a bright Mary who refused to make progress in school. Anomalies of behavior in children whose intellectual ability is at least average constitute the crucial problem for the children's worker to-day in every field, in child-placing and education no less than in the field of delinquency.

There are those of us who believe that the new psychiatry holds the key to this all-important situation, that what the children's worker needs the psychiatrist has, not an abnormal psychology, although it has been evolved in the treatment of the mentally ill, but a pragmatic psychology founded on human behavior. The psychiatrist's psychology from the start has been subjected to the acid test of direct results, always his theories

PUZZLES OF CHILD BEHAVIOR

Wrong conduct and harmful reactions in behavior among children intelligent and normal in other respects constitute the crucial problem in children's work to-day. What the children's worker must have is a psychology that will change behavior. Academic psychology has failed. Yet the child mind is plastic and will permit of adjustment as well as maladjustment.

The psychiatrist offers a dynamic psychology, a normal psychology evolved in the treatment of abnormal conditions, a psychology that helps to solve behavior problems.

We have to rid ourselves of our undue reverence for reason and intellect and our contempt for or shamefaced concealment of all that goes with instinct, feeling, and emotion. Biology tells us that reason and intellect are very fine but recently acquired instruments for adapting organisms to environment. The core of life is that which moves, the will to live, impulse, that which desires and wants and strives, without which nothing has value, not even intellect. Yet the reason and the intellect are the usual avenues of approach to altering behavior. No wonder we have failed. At least, if we succeeded it was because we used other methods unconsciously. It is when impulse and emotion become blocked, distorted and twisted that human beings get into trouble and it is only by unblocking, untwisting and finding satisfactory outlet for these same impulses and emotions that behavior is changed. Before we can do this, however, we have to understand what life energy, or whatever you choose to call the moving force in human life, is trying to achieve by aid of intellect and reason. Biology sees life as a long history of energy seeking to persist in individual forms and in reproduction of new individuals by developing more and more successful and more delicate machinery for overcoming obstacles and attaining its ends. The evolution from the one-celled animal who meets all of life's requirements by flowing around food substances and away from poisonous particles, to the nervous system of the human being with its

are checked up by the recovery, improvement, or nonrecovery of the patient. What he has discovered about the moving forces in human nature is intended for use and ought to give us the cue for re-educating our maladjusted children.

Those of us who have grown up in a Puritan or New England atmosphere have much to learn before we can make use of the psychology of the psychiatrist.

infinite possibilities of discrimination and subtlety, is a long journey, but the end and aim of the process have not altered. The ameba and the human being can both be explained in terms of adaptation or adjustment. Intellect, self-consciousness appeared not to supersede impulse but to create new and better avenues for its expression in a world made up of hard and resisting reality. It is as if there were a never-ending game between something we call energy and something we call reality, and the object of it all is that energy shall somehow satisfy all the conditions imposed on it by reality and still fulfill itself, still keep moving onward, creating new ways of life for itself. This, you say, sounds metaphysical and speculative but that does not matter if it gives us something we can use in a practical situation; if it works.

Social Adjustments and Conduct

With just this much of introductory theory we have two instruments for going at a human problem. *First:* We can see when we have a child who is stealing or lying or running away or staying too much by himself or flying into fits of temper, that this conduct is, after all, an adjustment, however inadequate, and that it is not primarily conscious or rational. It is all the child has been able to do with forces and circumstances in his life. It is his way of re-acting to something that is real for him, his method of satisfying an imperative instinctive need. Putting a label on this conduct, calling it by any name, learned or otherwise, having a personal feeling, reaction against it, as disgust, horror, indignation, discouragement, arguing or moralizing with the child, all of these ways of approaching this particular behavior are beside the mark. We must understand what the child is adjusting to by this form of behavior before we can do anything constructive. Finding out what purpose a given form of behavior is serving in the life of a child, who is not conscious of the basis of its actions, is a most difficult and delicate task, requiring intimate knowledge of the child, his history and environment, but we have made a start when we have learned to look at conduct, however strange or reprehensible, as an adjustment, no different in kind from highly social and approved ways of behaving. *Second:* from just this much of background, we can look at our problem child and say to ourselves, "this manifestation that so annoys and troubles me is an expression of energy, life force, and as such it is absolutely valuable. I can't destroy it without destroying the child. It has a right to expression and it will be expressed somehow as long as the child continues to live. Unless I can find some other way for this energy to come out, that is social and beneficial and still actually satisfies the

instinctive need that the present behavior is fulfilling, I shall fail with this child. If I stop up this outlet, another worse one may be found which I may not even know about, so that I shall not be able to tell what is happening: that is, I lose all hope of control if I do not know where the energy is going and have no way to get at it. My work begins, not with stopping up present channels, but with finding new ones. And with it all, I need to remember that what would be an outlet for my energy may not be one for the child. I can not afford to be offended if he does not take to the new channel I choose. It is his need, not mine, that sets the conditions of the experiment."

From this general attitude toward the child who constitutes a problem, let us go on to a more concrete idea of the kind of adjustments that any person has to make in growing up, because it is in the failure to make successful adjustments to reality that we find the roots of delinquency and functional mental disease. Let us try to get a schematic picture of the life history of any individual as the psychiatrist finds him so that we may see in general what the possibilities of failure are.

The Habit Basis of Conduct

The baby is born with an impulse to live, to push on, to try to satisfy his wants. But that is not the whole story. If energy just went ahead directly, with unimpeded force, having only external obstacles to meet, life would be comparatively simple. The thing the baby has to reckon with from the first is a tendency *not* to go ahead, a weight or drag on activity, a kind of instinctive laziness or inertia, that is only to be overcome by the necessity for going ahead in order to preserve life. The psychiatrist calls this the safety motive, because it represents that instinct for *not* taking risks, for staying in one spot rather than chancing the danger of moving, for clinging to the old, and established, and familiar, even when not satisfactory, rather than running into the possible danger of a new experience. It is this backward pull of life that makes human beings shun what is hard, avoid effort, and when carried far enough, choose death in preference to life.

The psychologist calls this the habit basis of conduct. Now, habit is certainly not bad in itself; it is absolutely essential to progress that there should be a firm established basis from which to go forward, something settled and not demanding attention. It is only when habit comes to be the end and aim of existence, when the life energy, instead of going on to break new paths, sinks back into a safe, comfortable bed of familiar routine, that it becomes a source of danger and disease. The forward pull, the energy which face new facts

and works out ways of meeting new situations that threaten the life of the organism, the psychiatrist calls the reality motive. He might have called it the creative push, or the constructive motive. Life in any human being consists of the never-ending struggle between these two tendencies, both of which are part of him and both of which are essential. If he is to preserve life he must play safe, and be ready to check any action that seems to involve risk; on the other hand, if he is to remain safe, he must take risks, he must go forward; if he stops moving he dies.

Perils of Unguided Energy

In the balance of power between these two motives, we find all possible degrees of good or bad adjustment. The ideal is to have just enough pull-back, just enough weight of habit and custom to stabilize without checking the on-going energy. The most perfect failure, short of death, is to have the safety motive so strong that no attempt is made to meet the issues of life, and connection between the mind and reality is practically severed. Desire and impulse still remain but they are satisfied without effort in a world of dreams. This condition has a name with which we are all familiar, dementia praecox. In the opposite extreme of unbalance, we find energy so free, so uncontrolled, that it tends to be utterly dissipated in every direction, there being no resistance, no background of solid known habit to give its activities meaning or relation. In this case energy does not evade reality by sinking back away from it but by trying to cover all of reality at once, as it were. This is not quite so serious a mental state as the first, because there is still a recognition of reality and a going out toward it, however ineffective. This state of mind is characterized by the term manic.

In the children we work with we find every kind of possible combination of these two motives, and in each child this eternal conflict is forever raging. Why one child should feel the pull away from people and things so strongly, why he should find it such an effort to meet the everyday, practical problems of life, and another should be so stimulated by every object he sees that he can select no single one for prolonged attention, no one knows. Heredity and constitutional bias account for part of it, in some cases are apparently entirely responsible; but there are so many influences in environment, in the make-up of parents, in various physical handicaps, which we do not yet understand, that when we are dealing with children we ought to be slow to fall back on the notion of hereditary taint or inevitable tendency toward mental disease. Our problem

with the child who tends to avoid practical issues or social contacts is to find some way of giving a stronger push or pull to the reality motive, some way of putting more interesting, exciting stimuli into the environment and of persistently encouraging the child to respond to them. In the case of the other type of child who never sticks to anything and responds to everything, we have, it seems to me a more discouraging and difficult task, but it is essential that we try to find a way of eliminating disturbing and distracting factors, reducing stimuli, and with endless patience and steadiness, help the child maintain interest in a single action or in related activities for longer and longer periods of time.

One should remember that only the extremes of this conflict mean mental disease. It is a normal, necessary conflict, present in all of us in varying degrees. We all waste energy in the face of a task demanding unusual effort by sheer, pull-back resistance, or we waste it and evade the hard job at the same time by finding a multitude of distracting things to do. The fact remains that undue waste of energy in either direction means bad adjustment, and, when noticeable in children, is worthy of every effort at modification or correction.

The Stages of Mental Growth

In one sense, we all have a bad start in life. We begin existence in the uterus in a state of perfect dependence which is at the same time perfect independence. Every need is supplied with no effort on our part. After our entrance into a world which is not there for the sake of supplying our wants, but from which we have to obtain our desires by persistent intelligent effort the course of normal development is a gradual but steady growing away from the self-contained satisfaction of foetal life, through the dependence of childhood, with its family protection, to an independence based on the ability of the individual to face reality squarely on his own two feet and obtain his satisfactions legitimately by working for them, that is by meeting reality on its own ground and forcing it to satisfy his needs. In other words, normal adulthood is an achievement. We attain it in face of that foetal ideal of an effortless state of utter peace and satisfaction. We attain it in spite of the fact that every stage on the way seems an easier, more comfortable kind of existence than the one ahead which spells growing energy and effort. We attain it not only despite external obstacles but despite the internal warfare of our own conflicting impulses.

As a matter of fact, however, many of us do not attain it. We stop at all the possible stages of semi-dependence on the way, but physically and

temporally we appear to be grown up. We live in an adult world which expects us to respond to adult problems on an adult basis, yet some of us have only infantile, childish, or adolescent ways of meeting life. We have no adequate response to adult demands. We are the people who have all kinds of more or less mild mental disorders, called psychoneuroses, neuroses, hysteria, and so forth. We do not pull back so hard or go forward so fast that we lose our grip on reality but we fail to meet life on an intellectual level. We are unable to organize our own warring impulses. We dodge and evade and take refuge in childish reactions. We cling and depend and comfort ourselves with all kinds of self-deception. We are not able to face hard, disagreeable facts, or make them less hard and disagreeable by our own efforts, so we have to be more or less blinded to life as it is, in order to endure it at all.

Evolution of Ideals

For the sake of clearness and simplification, let us reduce impulsive life to two general trends or tendencies out of which all the complicated interests and desires of the adult develop. One of these main trends of impulse is that push ahead which aims particularly at maintaining and furthering the life of the individual, self-preservation, expressing itself chiefly in activities to protect life by offensive or defensive measures and to obtain food. This tendency develops into all the complicated forms of work and play and creative activity. Its beginning is the ideal of nutritional satisfaction at the mother's breast with a minimum of effort and a maximum of immediate pleasure, a complete dependence combined with assurance of gratified desire. Its goal is the gradual lessening of the value placed on immediate nutritional satisfaction, an elaboration of indirect means of obtaining it, and a transforming of practical into more ideal ends, to be obtained only by hard continuous work. That is, the goal of self-preservation is economic independence, an adult who is able to wrest his living from the world by his own efforts and intelligence and who, at the same time is able to satisfy his creative energy. If he is tied to a dull unending round of labor and has no opportunity to move onward to the new, unconquered problem, he has not yet attained the goal, which is not just bare existence in the face of reality, but an actual forcing of reality to allow human growth and progress.

Dealing with Realities

As a baby the individual can get his wants supplied by crying. It is only as he finds himself wanting something that crying will not designate that he makes the effort to use other more elabo-

rate means. Since crying is not specific enough to indicate a certain object, he learns to use gestures. Little by little, as wants are not supplied by this omnipotent method, he tries to get some of the objects of his desire by his own efforts. At every step of the way, however, there is the temptation to use the earlier method, particularly when there seems to be no other way of obtaining ends. The most normal child may cry for the doll in the store window, if crying means a chance of getting it and he knows no other means. But the child who tends to cry first, and who holds on to this way of getting results, is not acquiring weapons for dealing with reality. He depends upon living in a child's world where a fond family can be influenced. He will find the world outside the family circle a hard place for which he is ill-equipped. We all of us know many adults who meet life on a similar plane. Difficult situations, instead of calling out the greatest intellectual effort to grapple with them, produce vomiting spells, attacks of headache, fainting, etc. Such methods are not conscious but instinctive; remnants of childish re-actions that were successful and easy.

Other individuals pass beyond this very primitive stage of self-preservation, which plays so safe that it hardly leaves infancy, but find the ease with which they can imagine satisfactions too great a snare. They want to achieve, to accomplish great results; as children they are always going to do fine things, but they are in too great a hurry for the outcome, they can't endure the delay and effort required to attain it in actuality, so they let an active and vivid imagination produce immediate returns which are so satisfactory that they may easily put off real fulfillment indefinitely. All of us more or less console ourselves in fancy for what we are unable to reach in reality, but the proverbial dreamer who accomplishes nothing is only the child who, fascinated by the power of thought, substitutes a dream for reality and is satisfied.

School a Crisis for the Child

School constitutes a crisis in the lives of all such children, since it demands of them effort and independence and does not respond to their regressive methods of dealing with reality. The child who finally adjusts himself to school conditions, however, may still find going out from school and the economic protection of the family circle into a world of work, a very upsetting, terrifying experience. Many young people who break down at this period show symptoms which seem to indicate a resistance to economic as well as sexual growing up. One youngster expressed it this way, "I simply can't endure the thought of

the long years of working ahead of me, doing the same thing day after day. I wish I had never grown up." A young Italian boy developed a new fear for every kind of job he tried. It was impossible to find anything in the way of work that had not something wrong with it. A girl who rebelled against maturity with all her strength developed physical symptoms which kept her at home whenever a position was obtained. Still another conceived a violent dislike of any trade or vocational training that was suggested.

We all know what it means, that resistance to giving up the ease and comfort of life at home and taking on responsibility for preserving one's own life. Children with such an aversion to independence need all the push forward, all the encouragement and strengthening of will that the family can give, and above all they need to be equipped with a definite something which they can really do well. The energetic individual, although he comes through high school or college with no particular training, can carve out a job for himself; but to the individual with the strong pull-back, lack of training for any particular work is a stumbling block which he overcomes only under the greatest pressure. Inability to face life on the economic side means delinquency in many cases, it means an overwhelming sense of inferiority in others which produces unpleasant neurotic symptoms. It tends to an unhealthy mental state and profound dissatisfaction with life, for such individuals must be forever concealing from themselves the fact of their failure. It is remarkable that girls in well-to-do families ever attain mental health with the pressure that is so frequently brought to bear to keep them at home, dependent on the father and mother. Add such environmental pressure to natural inclination and the result may easily be fatal.

Conflicts of Sex Life

So much for the self-preservation side of impulsive life. The other great trend which we may call sex, race preservation, or love life, exhibits a similar struggle in its efforts to attain the ideal of normal adulthood, intensified as it is by the extreme amount of repression and restriction put upon sex by the social environment. Sex instinct not only has its own internal conflict of safety motive with reality motive, but it has to meet social standards with which the individual always identifies himself at least in part, and in the face of all the existing restrictions still find expression for itself. Sometimes it seems as if society had done its utmost to make the path of sex development perilous, actually encouraging it to stop short of its goal.

Sex is not of necessity directed from the first

to another individual of the opposite sex. Such a going out of sex, leading to marriage and children, is the goal it tries to reach, but it travels a long journey and may stop anywhere on the way. Sex is the name we give to a certain imperative hunger or need of the individual. In its beginning it associates itself with certain bodily satisfactions and pleasurable experiences which are to be had independently of other individuals. The selfish, self-contained, limited idea of sex or love life is like the infantile dependence and omnipotence which we saw on the side of self-preservation. It can play safe and gain a certain satisfaction within itself without effort. It never need go outside of its own body. This, the psychiatrist calls the auto-erotic stage of love life, and it lingers with us as the regressive ideal of the safety motive, a possible resting place if the effort demanded for the next stage is too great, or if external conditions tend to drive it backward. We need always remember that the person whose sex life is driven back upon itself will most naturally and inevitably find outlet in infantile pleasures unless other use is made of the dammed up energy. The first attempt sex makes to lead the individual out of himself is in the attachment to the mother, who supplies bodily comfort and a warm, reassuring atmosphere of protection. This is perhaps the most alluring stage in the whole process of growing love life. It is capable of containing so much in the way of advancement and in development of personality, yet it requires so little courage, it is so altogether safe and wonderful, so satisfying, that it has been universally an ideal of the most perfect love, an ideal upon which to rest in time of stress or danger, the ideal upon which much of religion is founded. The physically weak or inferior child, the timid, retiring child, the only child, can hardly hope to escape from this stage unless he has a very disagreeable or a very wise mother. When, added to the child's own inclinations, there is the mother's need, using the child as an object for her own starved love life, he is, as it were, caught in a trap from which he will escape only by the grace of God.

The Adolescent Problem-Child

On the other hand, there are equally disastrous results if this stage of love life is unsatisfactory, if there is no supporting matrix of love and protection. The child is lost in a new and strange world, he has a deep-seated need for reassurance, a sense of social approval as necessary as the air he breathes. This craving for he knows not what, will lead him into strange and unwholesome paths unless he finds something to take the mother's place. One would expect to find many

disturbances from this cause among dependent children, who are thrown out of the supporting family situation into all kinds of alien places, changed from one place to another, perhaps many times within a single year. There must be some defensive reaction to environment on the part of such children, who have to live without the greatest necessity of childhood. It is probable that an investigation would show that dependent children in institutions and changing homes exhibit unusual attachment to forms of auto-erotic satisfaction, such as bed-wetting, thumb-sucking, nail-biting, interest in excretory functions and masturbation, or the more energetic forms of expression, such as stealing, romancing, truancy. These activities are expressions of fundamental hunger trying to satisfy itself in one way or another. The same thing would be true, of course, with any children whose home life was highly unsatisfactory.

Here again we have found the eternal paradox, mother-love must be the basis of the child's growth, but it must be overcome. The child who is to grow into an adult capable of meeting adult sex demands must be loosened from the tie that binds him first to the mother, then to the family. The forces that accomplish this result, aside from instinct itself which resists the home attachment, are the large family circle, brothers and sisters who break up the child's monopoly, school teachers, playmates, and all the interests and activities that take the child over from the smaller group. There is nothing more important in the entire life of the child than this broadening of social contacts, and enlarging of healthy activities. The child who has outside interests, who joins with other children in play, who takes hold of school with a will, has the best safeguard there is against the fixation of his love life on the mother or the family, which, if it occurs, may mean anything from lifelong unhappiness to mental disease.

The Struggle To Be Normal

When adolescence appears with its growing awareness of new physical needs and its need for the idealization of life and sex in the person of the loved one, if love life has been caught and held fast in an earlier stage, conflict begins. Auto-erotic habits interfere with normal sex life, yet offer no substitute for love, and there is a continual conflict between desire to be grown up and normal and the pull of the self-contained, easy, familiar path of pleasure. The awakening sex demands are repressed violently, where the young person's love life is quite completely fixed on mother, father, or other member of the family. There is no place for conscious sex in such a life

and if it is not used up in a variety of social interests and absorbing work, incest ideas will creep in and there will be perpetual conflict between instinct and the accepted morality of the group. Perhaps such an individual, in a struggle to be normal, may marry and find himself utterly unequal to the adult sex situation. His mother-attachment still holds him and tragedy or mental disturbance lies in wait.

So many paths there are for sex to wander in that there is hardly any object in life to which accident may not turn it. For instance, the child may get safely past the first two stages of his love life, without quite reaching the goal. Some blocking due to shocking association, or failure of the parents to meet the needs of childhood, may allow him to pass beyond the family but carry him no further than the individual like himself of the same sex. Endeavors to repress the sex elements in this tendency, sensitiveness to the attitude of society toward it, a tremendous desire to be like others, the difficulties of attaining any satisfactory sex life under such conditions, inability to meet marriage if it takes place: all of these factors combine to make the homo-sexual stage a dangerous stopping place, full of possibilities for delinquency, alcoholism, and many kinds of mental disturbance.

Effects on Social Welfare

This completes our skeleton outline of Everyman's life history, and because it is made up of never-ending conflict, it is also full of never-ending possibility of defeat to which we give all the varying labels that society has applied to maladjustment, criminality, delinquency, degeneracy, insanity, and the like, depending upon what effect the maladjustment has had upon social welfare. The hopeful side of the picture for the social worker is the apparent plasticity of growing human life. It permits of adjustment as well as maladjustment. Energy is not confined rigidly to any one outlet. If life denies one form of expression, another may be developed thereby to a degree hitherto undreamed of by the individual. If the social workers will approach the problem of her maladjusted children on the basis that the energy which is going into antisocial forms of behavior is detachable from such modes of expression, provided she can get at facts in the child's life and supply other satisfactory outlets, she will have taken the first step toward applying the dynamic psychology of the psychiatrist.

Before the granting of a marriage license in the state of Alabama, a physical examination is required of the prospective husband. He must undergo examination within fifteen days prior to the issuance of the marriage license.

THE NATIONAL BOARD OF MEDICAL EXAMINERS

BY WALTER L. BIERRING, M.D., PRESIDENT, IOWA STATE BOARD OF HEALTH; PRESIDENT, NATIONAL BOARD OF MEDICAL EXAMINERS, DES MOINES, IA.

THE idea of a central agency or board, to standardize and unify examinations for practitioners in medicine, has been the subject of discussion in medical sessions during the past two or three decades. Dr. J. M. Dodson of Chicago, in a letter to the *Journal of the American Medical Association*, September 1, 1906, was one of the first to suggest a National Medical Examining Board as a means to overcome the difficulties of interstate reciprocity. Colonel Jefferson R. Kean, M.C., U. S. A., contributed an interesting discussion with a definite plan at the Educational Conference in Chicago in 1914, but it was due to the enthusiasm and persistent reference to the subject by Dr. William L. Rodman of Philadelphia, that the National Board of Medical Examiners was finally established. It was the principal feature of his President's address before the meeting of the American Medical Association at San Francisco, in June, 1915, and its organization dates from that year.

Notable Men Are Members

Its membership, as originally constituted, consisted of six representatives from the three Federal medical services, and nine from the profession at large, three of whom were to be representatives of the Federation of State Medical Boards of the United States. The representatives from the Federal services included the three Surgeons General W. C. Gorgas, W. C. Braisted, and Rupert Blue, and, as additional representatives, Colonel Louis A. LaGarde, Admiral E. R. Stitt, and Surgeon W. C. Rucker of the Army, Navy, and Public Health Services, respectively. The remaining members from the profession at large, including the Federation, were Dr. V. C. Vaughan of Ann Arbor, Mich., Dr. Isador Dyer of New Orleans, La., Dr. Horace D. Arnold of Boston, Dr. Austin Flint of New York City, Dr. Herbert Harlan of Baltimore, Dr. William L. Rodman of Philadelphia, Dr. E. Wyllys Andrews of Chicago, Dr.

STANDARDIZED LICENSURE EXAMINATIONS

The examinations conducted from time to time in the medical centers of the country by the National Board of Medical Examiners, with the assistance of State Examining Boards, for graduates in medicine who are candidates for licensure, are the results of an earnest effort to embody the ideal of standardized and unified examinations for practitioners in medicine. A majority of the States, and the Army, Navy, and Public Health Service accept the certificates of the Board. The plan is being extended to other nations.

Henry Sewall of Denver, and Dr. Louis B. Wilson of Rochester, Minn. Surgeon General W. C. Braisted was elected the first president, and Dr. William L. Rodman of Philadelphia, secretary.

Very soon after its organization, the Board was called upon to mourn the loss of its distinguished founder, Dr. William L. Rodman, who met an untimely death from pneumonia, in March, 1916. To those who knew of his

devotion to the cause of a National Board of Medical Examiners, it is most gratifying that he was privileged to live to see it become definitely established; it thus became the crowning effort of his life, and will stand as one of his best monuments. As his successor Dr. Walter L. Bierring of Des Moines was elected. Dr. Rodman's son, Dr. J. S. Rodman of Philadelphia, was appointed secretary.

Upon the retirement of Surgeon General W. C. Gorgas by limitation of age, September 9, 1918, his successor, Surgeon General Merritt W. Ireland assumed his place on the Board.

In December, 1918, Dr. Henry Sewall of Denver resigned from the board. A successor has not yet been appointed.

By reason of its close relation to the Federal medical services, the National Board has been a prominent factor in bringing about a better mutual understanding of the medical departments of the Government and the general medical profession, which has been especially recognized in the recent war period.

Financial Support Is Adequate

The National Board, as a voluntary body, enjoys a distinct independent status, and, being supported by one of the large educational foundations, it is fortunately permitted to carry on its work free from financial cares to restrict its activities.

The principal object of the founder, Dr. William L. Rodman, that has been regarded ever since as the main purpose of the Board, was to develop

a plan of examinations for properly qualified graduates of medicine that would be indorsed and accepted by state medical boards in lieu of the examination for licensure required in their respective states. Doctor Rodman liked to refer to his own experience when, after being called from the University of Louisville to Philadelphia to assume a professorship in surgery, he was required by the then prevailing laws of Pennsylvania to take the regular licensure examination, sitting side by side with some of his former students from Louisville. The Board has reason to be gratified with the reception of the plan of examination by the state boards of medical examiners, since practically two-thirds of the boards in the country have already signified their acceptance and endorsement of the Board's certificate.

The certificate of the Board is accepted for admission into the Army, Navy, and Public Health medical services without further mental examinations. The Mayo Foundation will also accept as Fellows those who have passed the examination of the National Board.

The candidates represent the best type of graduates of medicine, since the requirements for admission to examination include a certificate from an accredited, four-year high school, two years of premedical college work, including at least one year each of chemistry, physics, and biology, and a reading knowledge of a foreign language, graduation from a so-called Class A medical school, and one year of intern service in an approved hospital.

Examinations in Medical Centers

The original intention of the Board was to hold its examinations in Washington, but it soon became evident that many desirable candidates were not able to come to Washington so it has become the policy of the Board, when necessary, to hold examinations in the larger medical centers and bring the same within close reach of the type of graduates, particularly the hospital intern, that the Board is desirous of interesting in this movement.

The first examination was held in Washington in October, 1916; the second also in Washington in June, 1917; the third in Chicago in October, 1917; the fourth in New York in January, 1918.

As the certificate of the National Board is accepted for admission into the regular medical services of the Army and Navy, it was thought best to hold several examinations in the Medical Officers' Training Camps, and, accordingly, an examination was held in April, 1918, at the Base Hospital, Fort Riley, Kas., and General Hospital No. 14 at Fort Oglethorpe, Ga. Since then the

seventh and eighth examinations have been conducted in New York and Chicago, respectively. An examination was held in Philadelphia during the first week of June.

While the original purpose of the foundation of the Board was to develop an examination that would be indorsed by the boards of medical licensure in the different states and territories of the United States of America, there has been a consistent effort to have the tests comprehensive and essentially practical, yet at the same time to be expressive and distinctive of the highest medical training in this country: and the intensive interest of representatives from the Federal medical services, and medical educators and examiners in the membership of the Board, with the assistance of medical teachers and State Board examiners as the examinations are held in the different medical centers, is gradually approximating to the above described ideal. With further experience changes no doubt will occur, but at the present time, it has seemed most satisfactory to begin the examination on a Wednesday and end on Wednesday of the next week, thereby having a Sunday in between for rest. It has seemed better to separate the surgical and medical divisions by having the tests in the subjects of applied anatomy, operative surgery, and surgical pathology, precede the clinical examination in general surgery and the surgical specialties: the practical tests in clinical chemistry, clinical physiology and pharmacology, general pathology, clinical microscopy, bacteriology, and hygiene, to be followed by clinical medicine; and practical obstetrics given separately. In each subject a short written examination is combined with the practical, which also includes a number of questions in medical jurisprudence. These are completed in six days, as no examination is held in the afternoon on Saturday, and one the last day.

In the Dominion of Canada there has been established for several years a Dominion Council which is similar in its purpose to the National Board. The Registrar, Dr. R. W. Powell of Ottawa, Ontario, was invited to attend the New York, January, 1918, examination, and submitted a most favorable report on the plan and character of the examination, besides giving a number of valuable suggestions which have since been carried out.

Colonel Charles Dercle, representing the French Medical Service in the Surgeon General's office during the period of our country's participation in the World's War, attended two of the National Board's examinations, and submitted a favorable indorsement in an official report to his Government.

In view of the intimate relations established between the allied nations during the great World's War, and particularly the mutual appreciation of the respective medical services, the Board considers this the opportune and psychologic time to familiarize the examining bodies of France, England, and Italy, with the purposes of the Board, hoping thereby to receive their endorsement, and thus lead the way to the international recognition of American medicine.

It has not been determined whether this can best be accomplished by sending a representative committee of the Board to visit the foreign examining boards, or to invite officials of the same to attend an examination in this country.

The executives and superintendents of the larger hospitals in this country, have manifested a deep interest in the purposes of the National Board, recognizing the influence of its examination in promoting a higher grade of hospital interns and practitioners of medicine. The members of the Board are deeply appreciative of the courtesies extended by such institutions as the Walter Reed, Garfield, and Soldiers' Home hospitals in Washington; Bellevue, New York, St. Luke's, Roosevelt, and Presbyterian hospitals in New York City; and Cook County, Presbyterian, St. Luke's, Michael Reese, Mercy, and Wesley hospitals in Chicago.

About one hundred certificates have been granted to successful candidates, including four women physicians. By the character of their work and the example of its examination, the Board hopes to live and fulfill its purposes, and thus add its mite towards elevating the standards of medical practice.

STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA

The thirty-fourth annual meeting of the Conference of State and Provincial Health Authorities of North America was held at Atlantic City, June 6 and 7, following the Conference of Health Authorities with the United States Public Health Service at Washington, June 4 and 5. Important committee reports were made on the following subjects: Activities in public health matters by Federal departments other than the United States Public Health Service; cerebrospinal meningitis; extension of Federal assistance in rural sanitation to the several states; progress of full time district health officer legislation; recent advances in sanitary laws, organization, and practice; the tuberculosis policy; international border health problems; and pneumonia.

Valuable contributions on the legal aspect of Federal health work were made by Dr. Frank A. Goodnow, president of Johns Hopkins University, and Allan J. McLaughlin, assistant Surgeon General, United States Public Health Service, the former on the possibilities and limitations of public health functions by Federal agencies under the constitution of the United States, and the latter on the

proper relation of Federal and state governments. Dr. Livingston Farrand, chairman, American Red Cross, gave a frank statement of the "Future Cooperation Between the American Red Cross and Public Health Agencies." The present status of pneumococcus vaccine was discussed by Russell L. Cecil, Major, Medical Corps, Army Medical School, and a symposium of health insurance and the public health was given by John B. Andrews, secretary of the American Association for Labor Legislation, George E. Tucker, Aetna Life Insurance Company, and John A. Lapp, managing editor of MODERN MEDICINE.

At the conference with the Surgeon General at Washington, problems of malaria, child hygiene, problems in interstate health work, public health education, problems in railway sanitation, the 1920 census, and the control of venereal diseases were discussed. Addresses were made by Judge J. H. Moyle, the Assistant Secretary of the Treasury, and Colonel W. H. Welch who represented the Public Health Service at the recent conference of Red Cross Societies held at Cannes, France, and Dr. D. Z. Dunnott, who serves as chairman of the Committee on Health and Medical Relief of the United States Railroad Administration.

HEALTH SURVEY IN ONTARIO SCHOOLS

A medical inspection and general examination for all the school children of the small towns and rural districts of Ontario has been arranged by the Minister of Education of the Canadian province.

Comprehensive plans have been made for the survey, which probably will extend over a year or two years' time. The arrangements provide for a dental inspection as part of the undertaking.

The Minister of Education, under whose direction the work will be carried out, has announced the appointment of some of the physicians and nurses who will assist in the project. The larger cities and towns which have made similar inspections will not be included in the present survey.

AMERICAN ACADEMY OF MEDICINE

The forty-third annual meeting of the American Academy of Medicine was held at Atlantic City, June 9 and 10, 1919, with the general subject, "War Problems of Sociologic Medicine," for discussion. The presidential address by E. O. Otis, M.D., Boston, discussed the effect of the war on moral values. Some of the important papers were: "The Needless Waste of Man-Power," by James P. Munroe, vice-chairman, Federal Board of Vocational Education; "The Effect of the War on Medical Education," by H. D. Arnold, M.D., Boston; "The Tuberculosis Problem After the World War," by S. Adolphus Knopf, New York; "Functional Nervous Disorders of Warfare in Relation to Employment," by Tom A. Williams, M.D., Washington; "Labor as an After-War Problem," by Irving Fisher, Ph.D., Yale University; "The Nation-Wide Plan for Venereal Disease Control," by C. C. Pierce, U.S.P.H.S.; "Housing in Relation to Health," by James H. McBride, Pasadena, Cal., which paper appears in this issue of MODERN MEDICINE; "Health Insurance," by Chester Rowell, Fresno, Cal.; and "Medical Attitude Toward Health Insurance," by J. B. McAllister, M.D., Harrisburg, Pa. The report of the committee on welfare insurance was submitted by George A. Hare, M.D., Fresno, Cal.

The papers and discussions at these meetings were of the highest merit in this field and should be widely read in their printed form.

PHYSICAL THERAPY IN FUNCTIONAL DISEASES

BY JOHN W. BOWLER, M.D., PROFESSOR OF HYGIENE AND PHYSICAL EDUCATION, DARTMOUTH COLLEGE, HANOVER, N. H.

TO DAY, more than at any other time in the history of the world, physical fitness and its importance are impressed upon our minds. In most instances physical unfitness should be considered as reprehensible conduct; for, after all, those who pay no heed to the proper care of their bodies and, because of their self-indulgences, often bring anxiety and unhappiness to their families and friends, are physical and moral sinners. A nervously tired-out man is not likely to inspire confidence in his business associate, client, or patient.

Mental staleness in the overworked business or professional man is like staleness in the athlete who has overworked in his desire to win, or because of overstimulation by an embryo trainer. A stale athlete never won a prize. Neither can a business or professional man with a tired-out nervous system or a stale mind carry to a successful issue anything that is really important.

Nature Is a Careful Creditor

If a man is tricky and dishonest, he can find some way to evade all his creditors but one; the one that cannot be beaten is Nature. Nature is indeed a kind and loving mother. Nevertheless her laws and demands are imperative. Because Nature is so lenient with most of us, we soon forget there are such things as laws of hygiene, and that the repeated violations of those laws bring their own penalty in the form of eventual ill health and, in many instances, of shortened or ineffectual life.

Nature's laws are mandatory. If not heeded early, her ultimate demands are likely to come in the midst of business enterprise when physical and mental health are prerequisites to success and the effort to resist this demand, or even to compromise, meets the usual result of things badly done if accomplished at all.

Practically all cases of mental and physical inefficiency are due, not to any organic lesion, but to a retention of waste products in the body caused by a lowering of the functions of the

THE TOLL OF BAD HABITS

The hustling American adds to his already heavy business or professional cares, in not a few cases, an assortment of habits bred of indulgence, haste, worry, over-work, dissipation, nervous tension, lack of exercises, and neglect of Nature's physical laws, which, at the end of a few years, will have seriously impaired the functioning of some one of the bodily organs.

Many of these patients, the tired business men who want to regain their old pep, may be restored to complete health by proper diet, regularity of habit, massage, and reliance on Nature's therapeutic agents.

however, would be a comprehensive answer to the question.

"For several decades preceding the war the death rate in the United States has steadily fallen, a phenomenon common to all civilized countries. This, however, has taken place in the younger age groups and not in the older age periods.

"This latter phenomenon, a rising mortality in elderly life, is something almost peculiar to the United States.

"England, Wales, Denmark, Norway, Sweden and Prussia show improved mortality at every age period.

"At age forty-five the death rate in the United States increased on account of degenerative diseases. In the United States the mortality from diseases of the heart, blood vessels, and kidneys increased 41 per cent, while in England and Wales there was a decrease during the same period from these same maladies."

Intemperances Raise Death Rate

Briefly, intemperance in most things is the cause which produces this dire result. But the subject is too important to dismiss in a brief manner, and it is the purpose of this communication to cite some of the most frequent causes of the degenerative diseases, and to suggest remedies or methods of treatment.

It is generally accepted, and correctly so, that the social diseases are responsible for a large percentage of the degenerative diseases; but there are many other causes which if not removed while in the incipient stages, lead to the same pathogenic conditions.

emunctories, principally the bowels, skin, kidneys and lungs; also, to a great depreciation in the functioning power of the liver, heart, stomach and intestines.

The predisposing causes which lower the functions of these organs might be summed up in the one word, worry. But what causes worry? Again the answer is in one word, pessimism. Pessimism sours the mind and degenerates the body." Wrong living,

The American is known the world over as a "hustler," a man of ceaseless energy. By some foreigners we are called a nation of neurasthenics. It is undoubtedly true that constant business cares and their accompanying worries are responsible for keeping men under constant high nervous tension, which in a short time reduces the functioning of all organs of the body.

The sporadic week-end spent at golf oftentimes does more harm than good, because of overindulgence and the inability of the body to throw off fatigue products so produced.

The general trend of late years has been to increase production efficiency, to speed up in every line of human endeavor even when this increase in efficiency is due, not only to eliminating unnecessary physical movements, but to improved machinery that requires the workers to speed up constantly in order to keep the machinery busy.

The busy physician, because of the automobile, visits more patients daily, and performs more scattered operations in a day now than he could do in two days a few years ago, but he actually spends less time in the open air and sunlight than in the days of the one-horse-shay. Likewise, the business and professional man does actually more work in fewer hours than was formerly accomplished in much more time. As this increase in accomplishment brings with it a corresponding responsibility, and, because of this, a higher, almost constant, nervous tension, why seriously express astonishment upon the increase in functional diseases?

Automobiles Cause Nervous Ills

The automobile performs a worthy function when it is used to take an invalid into the open air, where a change of faces, places, and scenery act as tonics. But how does it serve the average individual who has spent most of his daily hours at his business or profession merely of a sedentary nature? It lessens rather than increases the depth and frequency of respiration. A man riding in an automobile is practically at rest. This is not ignoring the fact that a passenger in an automobile riding even a few hours receives some slight direct and indirect tonic effect from the open air and sunlight, especially if he forgets his professional or business cares or worries. However, he leaves the car at the end of his trip with muscles somewhat stiffened, and with an appetite often increased beyond the requirements of the body; and this in turn causes increased ill health, because of the extra burden thrown upon the already weakened organs of digestion and inefficient organs of elimination.

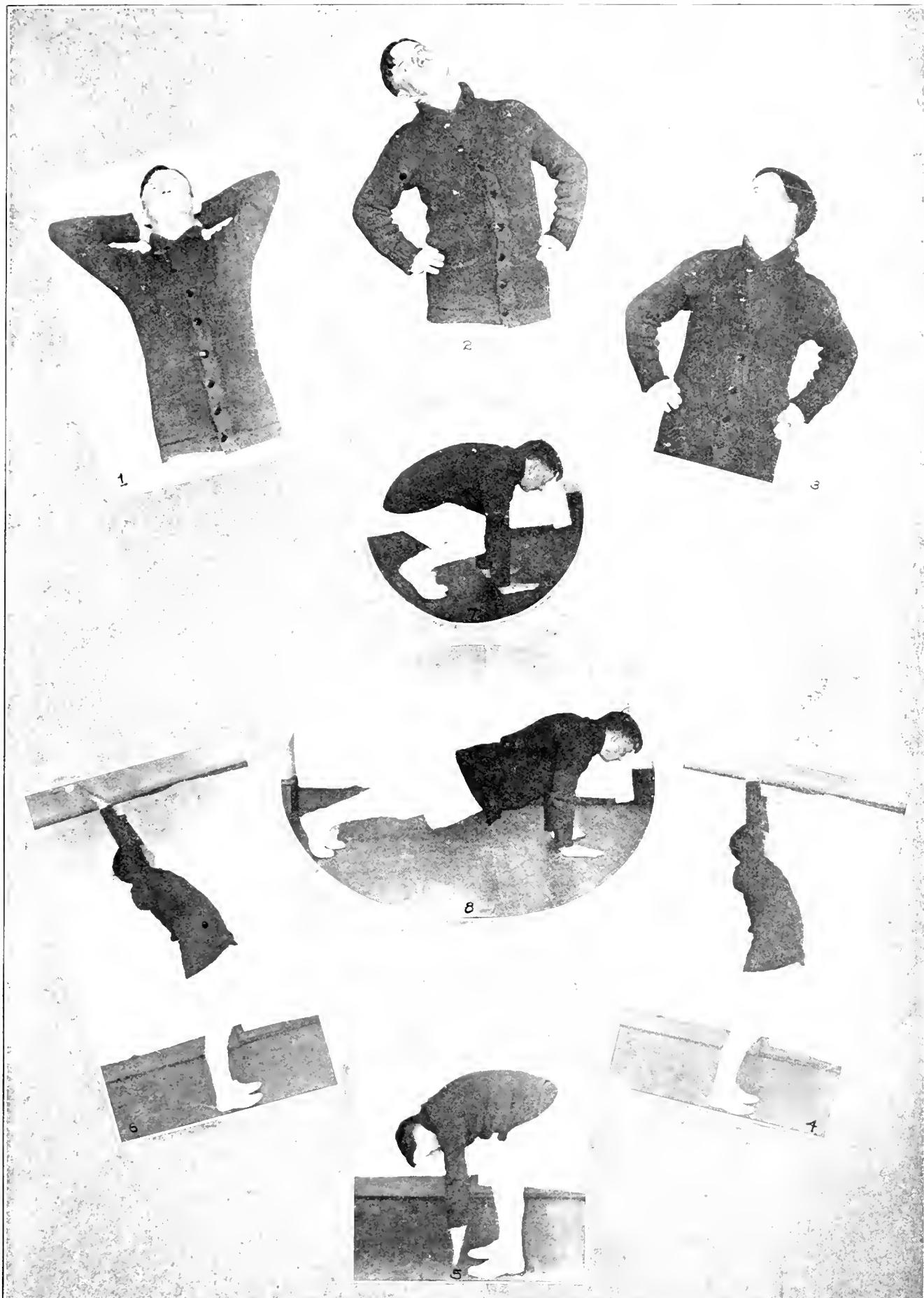
The various causes already mentioned as

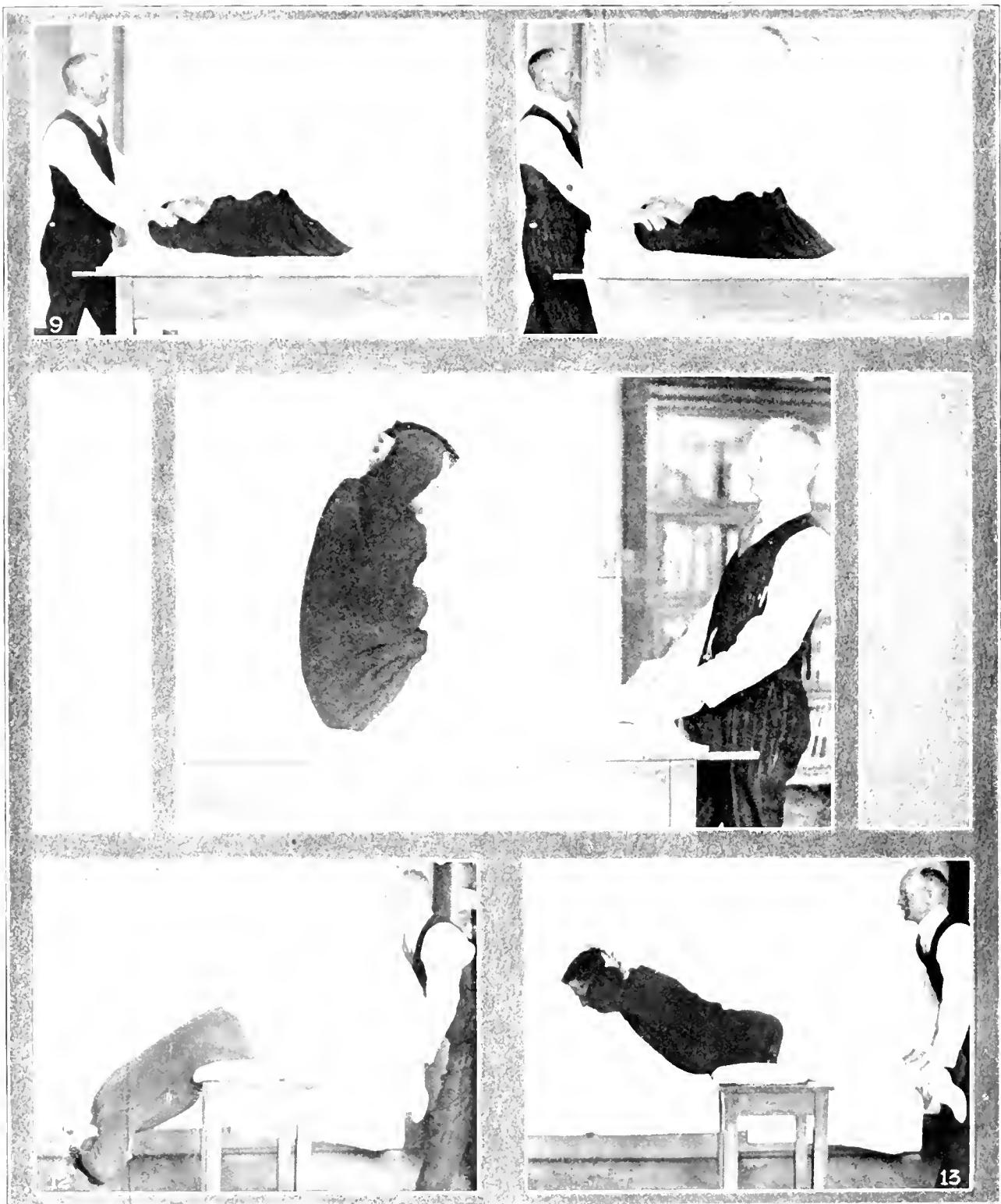
chiefly responsible for ill health among business and professional men will not be discussed. The causes of the nervous disorders among females are more various. Functional diseases in all classes and ages are met with among both sexes. Disturbances of the nervous system, aside from those resulting as the sequel of "social diseases," have for their etiology vicious daily habits, particularly in eating, drinking, in the matter of time and methods of recreation, and lack of physical exercise; and these disturbances are almost entirely restricted to business and professional men who add to their heavy cares and their corresponding worries those habits which are opposed to the laws of health and longevity.

If, then, the mind is to be an intelligent, efficient, commanding officer and the body a good soldier who obeys orders instantly and efficiently, both the commanding officer and the soldier who receives the orders are not only to be properly trained but properly cared for; otherwise when the time for the battle approaches the commanding officer becomes panicky and the soldier disorganized. When the battle actually takes place, chaos reigns and the affair ends in disastrous defeat. It is of little moment whether this battle is one for business, professional, political or social success.

When a patient presents himself to his physician the latter should be keen enough to read rightly the premonitory symptoms of overwork or wrong living, and have courage enough to inform his visitor frankly that stimulants or drugs of any kind are not the things needed to restore him to his normal, healthy condition. The so-called stimulant would probably act like the whip in the hand of a brutal driver whose horse halts exhausted half way up the hill. The driver may lash the horse again and again until the poor beast, stimulated by fear, makes a frenzied effort and goes on a little farther up the hill; but he will finally fall completely exhausted. Every drug stimulant has its reactionary, depressing effect, and these periods of depression become deeper and more frequent as the result of the stings of the stimulating lash until they merge into one continued period of depression.

I have referred above to premonitory symptoms, which are danger signals that should be heeded, which the patient as a rule endures for some time before consulting his physician. Work, which earlier was a genuine pleasure because of the delight taken in things well done, becomes increasingly difficult; less work is accomplished in a given time; memory is not strong, overlooks now and then some important matters; the





Some of the exercises devised for the treatment of functional diseases by the methods of physical therapy are portrayed in Figures 1 to 20, on this page and the pages preceding or following. A patient under treatment posed for the photographs. He began in a very poor general condition with a diagnosis of myocarditis. The exercises are arranged by series in the illustrations. A detailed exposition of the exercises employed in the treatment of the case, step by step, as illustrated, will be found on page 254.

NECK EXERCISES

Figures Nos. 1, 2, and 3 illustrate some of the movements of the head and shoulders that are used to secure an increase in the blood supply to the cervical section of the spinal cord and throughout the brain.

BENDING EXERCISES

In figures Nos. 4, 5, and 6 are pictured the bending movements of the arms and trunk

which the patient was told to perform for the effect in raising the chest wall and in increasing the antero-posterior diameter of the thoracic cavity, and also flattening the abdominal wall by bringing pressure on the viscera in assuming the stooping posture.

CROUCHING MOVEMENTS

A rather strenuous exercise is shown in Figures 7 and 8, as any one knows who has

tried the stunt which the patient in the pictures is executing. In the crouching position the pelvic and abdominal viscera are pressed upon and massaged.

EXERCISE ON A TABLE

By the increased oscillation of the viscera affected in the group of exercisers using the table, shown in Figures 9 to 13, a massage effect is gained, the fat about the viscera is decreased and the general tone improved.

patient is easily irritated, delays answering important letters because of indecision, and reaches a point where he tries to "side step" duties that are his to perform; his appetite is poor and he sleeps but little. By this time the patient is alarmed and consults his physician. Accompanying these symptoms will be found, through the history and a thorough physical examination, the inefficient functioning power of the emunctories and other organs and systems of the body. Why then further burden an already weakened, depressed, toxin-laden system?

Earlier in this article it has been stated that Nature's demands are imperative. Nature, however, usually gives ample warning and the man is indeed foolish who ignores the warning, or even tries to compromise. For if the danger signals are promptly heeded, health is more quickly restored with less loss in time and money and a corresponding diminution in the anxiety of the family and friends.

Observing the Patient

Now what are the best remedies to be used in these cases and the method of treatment? In order to carry out the treatment successfully the patient should be under the constant supervision of the physician who gives the treatments so that he may note and interpret, at intervals, the physiological reactions for a few hours subsequent to each treatment; also because many of this class of patients have lost their initiative and have not the power to go ahead with even the most carefully prepared type-written system of directions. Again, the treatment must be gradually increased in amount and intensity and this can only be done scientifically and efficiently under the personal direction of the one qualified to give the treatment and who is responsible for the result.

The treatment consists in establishing, by precept, regular and healthful habits and practical instruction in the laws that govern good health. Almost all these patients are restored to complete health in from three to six weeks.

In addition to proper diet and massage, Nature's therapeutic agents are entirely relied upon. Following is the daily schedule for the patient:

Rise at	6:30 a.m.
Five-minute stroll	6:55 a.m.
Breakfast	7:00 a.m.
Free time	7:30 to 9:45 a.m.
Treatment	9:45 to 11:45 a.m.

The treatment consists of special exercises, shower bath, sun- and air-bath (nude in the open air, weather permitting), and finally a thorough massage (not merely a rub). The exercises are increased as rapidly as the condition of the patient warrants, and the time devoted to massage lessened, until toward the end of the treatments not more than 15 minutes are devoted to massage.

Dinner	12:00 m.
Rest period	1:00 to 3:00 p. m.
Treatment	3:00 to 5:30 p. m.

The treatment in the afternoon is the same as in the morning with the exception of substituting a walk of 3 to 6 miles across country, through woods, and over hill and dale, for a portion of the special exercises.

Supper	5:45 p. m.
Recreation	6:45 to 9:15 p. m.
Bedtime	9:30 p. m.

The illustrations given herewith, (chosen from a long series of exercises because the easiest to photograph), may serve to make more clear the type of treatment. The impossibility of outlining a definite plan of procedure in the physical treatment of such cases is obvious to one who realizes that a physician who in such cases gives didactic orders, such as to walk a definite number of miles a day, does not appreciate the pathology of the condition, the observation of the reaction of the patient, the gradation of the work being of vital importance.

Before treatment is instituted, the patient is given a thorough physical examination to detect gross organic deficiencies. At the beginning the amount of exercise is carefully graduated according to the condition and the stamina of the individual, and this is gradually increased with the aim of producing healthful perspiration, good cardiac and pulmonary action, and raising the general tone of the entire body.

Treatment and Method of Procedure

The schedule given above is carried out to the letter; thereby regular habits are developed. The first day the part devoted to physical exercise may not be more than fifteen minutes. The exercise consists mainly of calisthenic exercises so arranged as to bring into play every group of muscles and to stimulate the viscera and all organs of the body. After this the patient is given a shower bath and, weather permitting, he then steps, nude, out on a balcony where he receives a sun- and air-bath, gradually increasing from ten minutes to perhaps half an hour. The treatment is concluded with a general massage for about thirty minutes.

The afternoon treatment begins with a walk, moderate as regards both speed and distance; this is gradually increased. The day is completed with the exercises as given for the morning treatment.

The first week is a period of marked transition and during that period the exercises are increased in intensity and length. After the first week from one hour in the morning to two hours in the afternoon are occupied with this alone. Later, when advisable, more vigorous competitive exercises are added, such as a tennis, hand ball, etc. Before, during the exercise period, and after the complete treatment has been given, the pulse and heart action are noted and the treatment modified accordingly.

Practically all the patients for reconstructive treatment are afflicted with chronic constipation and by the measures outlined the normal functions of the intestinal tract are quickly restored without resort to cathartics. A large proportion of the cases are business and professional men who are nervously worn out and all of this class of patients are restored to complete health and renewed courage. Details are given of four patients who presented definite organic lesion.

A. Man, age 52. Came with a diagnosis of interstitial nephritis. Blood pressure 226. Nervous. Treatment lasted 12 weeks. Blood pressure reduced gradually until the ninth week, when it was 146, at which time the urine was normal and remained so. Absolutely no sign of nephritis and none on examination three months later excepting a blood pressure of 152.

B. Man, age 22. Rejected in June, 1918, by his local examining board because albumin and casts were found in the urine. Height 5 ft. 9 in. Weight 120 pounds. General condition bad. Left in good condition after 10 weeks' treatment, having gained 15 pounds in weight. Urine normal. On reexamination in Chicago he was accepted for military service and sent to an officers' training camp where he remained until the armistice was signed.

These are the only two cases of nephritis so treated. Whether such cases are true nephritis or essential hypertension will need to be determined by the internal medical men. Treatment was undertaken with the hope that neuromuscular training would improve the general physical condition and thereby increase elimination through the lungs, bowels, and particularly through the skin, by increased respiratory action and profuse perspiration, and the massage effect on the bowels by graded and scientifically applied physical exercise. The only change in the diet was a slight reduction in the amount of the dark meats. General improvement was expected, but the marked benefit to the kidneys of the treatment in both cases has furnished food for thought. The results are reported at the instance of interested physicians.

C. Man, age 41. Height 5 ft. 7 in. Weight 220 pounds. He came with a diagnosis of cholelithiasis on the advice of his surgeon to get into better condition before operation for removal of the gall-stone. After two weeks' treatment at Hanover, and four at "Health Farm" he was reduced 46 pounds in weight, was in perfect health and has remained so for a period of two years.

D. Man, age 79. Came to farm with a history of angina pectoris, chronic indigestion, and chronic constipation of many years standing. For the relief of the constipation the patient had resorted to enemas for several years. Treatment was much modified in this instance and was directed almost entirely to the relief of the conditions of the stomach and intestinal tract. The second day the patient had two normal stools and this continued during six weeks of treatment. The "angina" attacks became less severe and less frequent, and in a few weeks the patient was entirely free from heart symptoms. Close observation of this case would seem to indicate that it was not a true angina for the attacks entirely disappeared as

the functions of the stomach and intestinal tract approached the normal. The patient returned to the farm a year later for four weeks' treatment and left, age considered (80 years) in excellent condition.

EXPOSITION OF EXERCISES IN PHYSICAL THERAPY

The accompanying illustrations show some of the exercises applied in the treatment described in the foregoing pages. The subject is a patient now under treatment. Patient came with a diagnosis of myocarditis, and, in very poor general condition. Age 50. Blood pressure (diastolic) 98. Heart weak and arrhythmic. Lung capacity but 180 cubic inches. Chest expansion but 1.4 inches. Girth of chest, fully expanded, 35.3 inches. Girth of waist 36 inches. Height 5 feet 4½ inches. All measurements, except girth of waist, below the average. Muscular strength and coordination very poor. Distention of the intestinal canal, particularly the colon. End of first week's treatment, general improvement good. Blood pressure 108. End of second week's treatment improvement marked. Blood pressure 112. Lung capacity increased 20 cubic inches. Chest expansion increased ¾ inch. Girth of chest increased 1 inch. Part of the latter is due to increase in the muscular tissue and in part to increased elasticity of the chest wall. Girth of waist shows a decrease of 1½ inches.

* * * *

[The following brief explanations of the execution of the few exercises illustrated, and the physiological results attained will make clear the value of gymnastic exercises as a therapeutic agent.]

SERIES NO. 1

Fig. 1. Fingers interlaced, hands behind occiput, press the head backward resisting with the hands; then carry the head forward; repeat about twenty times.

Fig. 2. Hands on hips, flex the head toward the right shoulder; then lift the head to erect position; repeat about twenty times. The same movement is then executed toward the left shoulder.

Fig. 3. Rotate the head looking over the right shoulder as far as possible, about twenty times. Repeat to left.

The effect on the various groups of muscles used in the execution of the above exercises is obvious. The principal physiological action sought for is an increase of the blood supply to the cervical section of the spinal cord and throughout the brain.

Increased use of a group of muscles adds to their size and efficiency. The speed, strength, ease, and grace of coordination between the various muscle groups are merely physical manifestations of the degree of nerve power the individual possesses. Through the increased use of a group of muscles, the efficiency of the nerve cells of the spinal cord and brain, and the nerve fibers which form the connecting link, is increased. Metabolism is improved, and elimination of waste products accelerated.

SERIES NO. 2

Figs. 4 and 5. Arms extended overhead, bend forward and touch the toes as in Fig. 5, keeping the lower limbs straight. Swing upward to starting position and repeat. This exercise is done from one to two hundred times daily, in the two treatments given.

Figs. 6, 7 and 8. Arms extended high overhead. Swing forward and downward to position as shown in Fig. 7, and on count 2 extend the lower limbs and body in a straight

line backward as in Fig. 8, and on count 3 return to position as shown in Fig. 7, and on count 4 arise to erect position as in Fig. 6. Repeat this exercise as often as advisable.

The effect is to raise the chest wall and to increase the antero-posterior diameter of the thoracic cavity, to flatten the abdominal wall and bring pressure on the abdominal viscera in assuming position as in Fig. 6. In position 7 the pelvic and abdominal viscera are pressed upon and

massaged, and released from pressure on assuming position 8, and the effect again brought on the viscera on returning to position 7. The effect on the muscles is obvious.

SERIES NO. 3

Fig. 9. Lower limbs extended in line with body, flex the thighs against the lower abdomen, then return to straight position and repeat.



THE BAR-BELL

The exercise with the bar-bell illustrated in Figures 14, 15, and 16 stimulates the liver in particular, and, by the massage effect gained in rotating and bending the trunk, improves greatly the functioning of a sluggish liver. The massage effect along the spinal cord and nerves is beneficial in cases of neurasthenia. The fat about the abdominal viscera, as well as the external fat about the waist line is reduced. The exercise shown in Fig. 16 is used for the same effect.

THE DUMB-BELLS

Figures 17 and 18 show an exercise with the dumb-bells in which the bells are swung outward and downward, while at the same time the squatting position is assumed and the bells brought forcibly together behind the legs as low down as possible. Then the body is quickly straightened and the bells swung outward and upward. The effect of this exercise is in the muscles of the chest, shoulders, and back, and the massage upon the abdominal viscera.

THE MEDICINE BALL

An exercise with the medicine ball is shown in Figures 19 and 20. The ball is held in position in front of the chest. The movement begins by thrusting the ball outward and downward, between the feet, as far as possible, a movement which crowds the abdominal wall. Then it is swung forward and upward, ending the swing of the ball behind the head. The ball is then thrown to the assistant, or to another patient. This exercise is repeated from ten to fifty times.

Fig. 10. Retain the extended position of the lower limbs and raise to a right angle, at least, to the body.

Fig. 11. Raise the body to a sitting position and return to the recumbent posture.

Figs. 12 and 13. Using a small table, bench, or stool, with a folded blanket slightly overhanging the edge, have patient assume position with assistant holding the ankles as in picture 12. Patient raises the body to position as shown in Fig. 13 and repeats.

By the increased oscillation of the viscera in exercises 9, 10, 11, 12 and 13, a massage effect is gained, the fat about them is decreased, and the general tone of all the viscera increased. The fatty tissue about the abdominal wall is decreased and the muscles made firm and increased in size and strength. The functions of all the organs, in particular the stomach and entire intestinal tract, quickly approach the normal functioning power of healthy organs. Many patients when beginning are unable to accomplish exercises 10 and 11 even once, but within a week are usually able to repeat those exercises from ten to twenty times, without a break in the rhythm.

SERIES NO. 4

Figs. 14, 15, and 16. With a bar-shell as shown in Fig. 14 (a long push-broom handle will answer the purpose) flex the body to the right as far as possible as in Fig. 15; then, rising to erect position, flex to the left side; repeat fifty times. Then from the erect position rotate the body to the right side looking around as far as possible; then swing through the front to the left side as far as possible fifty times, as shown in Fig. 16.

After a few days the patient will do each of these two exercises from two hundred to five hundred times daily, depending upon the condition of the patient and what it is desired to accomplish. The exercise as shown in Fig. 15 stimulates the liver in particular and by the massage effect considerably improves the functioning of a sluggish liver. Other viscera are also benefited. The massage effect along the entire spinal cord and the spinal nerves is markedly beneficial particularly in cases of neurasthenia. The fat deposited about the abdominal viscera, as well as the external fat about the waist line, is reduced. The exercise as shown in Fig. 16 is used for the same effect but the attack is made from a different angle.

SERIES NO. 5

Figs. 17 and 18. These figures show one of a large group of dumb-bell exercises. It is started as in Fig. 17. The bells are swung outward and downward, describing as large a radius as possible; at the same time the squatting position is assumed with the abdomen pressed on the thighs and the bells are brought together forcibly behind the legs as low down as possible. Then the body is quickly straightened and the bells swung outward and upward. The ends are brought together overhead and the whole manual repeated.

The particular effect of this exercise is upon the upper chest, shoulder, and back muscles, and the tremendous massage effect upon the abdominal viscera.

Figs. 19 and 20. These figures show one of the medicine-ball exercises. The ball is started from in front of the chest and swung outward and downward between the feet as far as possible, crowding the abdominal wall, then swung forward and upward, ending the swing of the ball behind the head; then the ball is thrown about 20 feet to the assistant, or to another patient. This exercise is repeated from twenty to fifty times, depending on the strength of the patient.

LAMBERT REVIEWS MEDICAL PROGRESS

The presidential address of Alexander Lambert before the American Medical Association at Atlantic City is a notable contribution, summarizing particularly the work of the medical association during the World War and deducing from this survey the outstanding problems of the profession to-day.

It was no small achievement for the profession to meet within a year conditions demanding the expansion of the medical corps of the army and navy to something like thirteen times its personnel in times of peace. This rapid mobilization would have been physically impossible but for the excellent organization of the American Medical Association and its rapid dissemination of all important news through the pages of its valuable journal. That physicians would at once respond to the demands upon them was to be expected of a profession whose very nature presupposes a body of chosen men, men of high purpose, disciplined by habits of scientific study, and dedicated to the service of their fellow men. That this mobilization of medical forces required 26 per cent of the entire profession of the country is evidence of the great personal sacrifice it entailed. This sacrifice and the achievements for the welfare of the men should reflect full credit on the medical corps and should result in legal enactment which will bring about adequate representation of the Medical Department on the General Staff of the Army.

His study of the medical history of the several wars gives startling confirmation of the needless waste by disease of armies and peoples.

Scientific medical research has resulted in the practical elimination of many of the scourges of former wars. The crucial test of preventive medicine in the recent war is not fully realized. It is no longer inevitable that pestilence among civil populations must follow demobilization of troops. Proper sanitation, preventive inoculation, disinfestation, have removed this danger. The pneumonia of the recent war was beyond control, being a part of the world epidemic; but, eliminating the pneumonia death rate from the total death rate by disease in the war, there remains a rate of 2.2 per thousand for the entire army on both sides of the water, which is practically a peace-time rate.

The discussion of the relative incidence of the several infectious diseases is full of interest and serves to emphasize the necessity of placing the initiative of certain provisions for the welfare of the men in the medical department of the army. He discusses other outstanding needs of broadened educational facilities for medical men; of organization problems bestowing authority according to responsibility, and proper correlation of clinical procedures so that uniformly good care may be given to all; of the advisability of an established policy delegating to the Red Cross certain functions they have performed well in an emergency.

One need which stands out with great distinctness is the importance of general national supervision of public health through protection against transmissible diseases, of Federal measures of wide scope in the prevention of malaria, for instance, of central action on problems of health education, some phases of infant mortality, and on the increase of degenerative diseases. This is a period of unprecedented health activities but they "lack the efficient power of central correlation. . . . It is the duty of the American Medical Association, and of each member of each state association, to urge on Congress the establishment of a National Department of Health.

THE NEED OF SPECIAL CLASSES FOR CHILDREN WITH DEFECTIVE SIGHT

BY JOHN GREEN, JR., M.D., F.A.C.S., ST. LOUIS

THE daily routine of the practising ophthalmologist may appear to some of his fellows a rather dull, not to say tedious, round of oft-repeated duties. One who really cares for his specialty will, however, always find enough variety to incite his diagnostic and therapeutic acumen. The ordinary problems of any medical practitioner confront him, in addition to many questions which pertain strictly to his special sphere, and it would seem that to an exceptional degree the wider reaches of medicine, the study of the patient and the application of remedial measures according to economic and social need, are more urgent upon the ophthalmologist than upon other specialists. Often, indeed, the question is not one of diagnosis and treatment, but of social study and adjustment. The truth of the hopeless blindness of a child may have been dimly realized by the parent, and the appeal is not so much medical as social, the consultation being sought in the hope that some means may be suggested to lighten the almost intolerable economic burden of blindness.

Compulsory Education for Blind

More than any other class of unfortunates, the blind make their sympathetic appeal, and organized work for their relief provides in the United States (1916) 61 public schools for the blind in which 5,155 pupils were enrolled. Surveys have been taken, appropriations made, standardized methods of procedure established and, in some states, the education of blind and deaf children has been made compulsory. It is the plain duty of the oculist consulted to be fully informed as to the details of the work of his state institution so as to be able to urge with all eloquence that the stricken child be entered there at the earliest opportunity in order to give him every chance to acquire a thorough education. Only those who have been privileged to watch the emergence of

EDUCATION OF THE SEMI-SIGHTED

The standard methods of classroom study in the public schools are unsuited to the child with poor sight.

For him there is either no education adapted to his handicap, or else education acquired at the expense of untold nervous strain.

Special classes and methods are needed to give the visually deficient child an equal chance with his better equipped playmates. Surveys have been made and standards developed for the education of the blind. The same wise procedure should be adopted in the education of the semi-sighted.

the shut-in soul from spiritual darkness to spiritual light through the kindly and highly specialized efforts of schools for the blind can realize the immense good that these institutions are doing.

"There are 100,000 men, women and children in this country who are, within the strict definition, blind. One-fourth of these need not have lost their sight.

. . . This means the loss to the State of productive labor," and

shows the economic importance of vocational training for the blind.¹ The conservation of vision of the partially sighted is even more important. The prevalence of defective vision is indicated by the rejection of 12,374 persons on account of deficient eyesight out of 166,392 recent applicants to the Navy and Marine Corps. The possibilities for good in early reclamation work are indicated by the 1917 survey of 29,242 blind persons in the United States which elicited the fact that of the total group only 6.6 per cent were born blind; 5 per cent lost their vision before the age of one year, 16.4 per cent under the age of five years; 30.8 per cent under 20 years of age; 47.4 per cent during early or middle years (from 20 to 64 years, the increase being due to industrial accidents, etc.); and 21.8 per cent (about one-fifth of the total group) after the 65th year. Ocular examination of school children should be universal and should be repeated regularly so as to determine as early as possible the causes of defective vision during school life and to see that the rules of visual hygiene are observed. Recent figures from Ohio show 538 children with defective vision and 332 with diseases of the eye in 1,680 school children examined. A survey in Chicago showed 65,000 pupils with defective eyesight, 660 with vision less than one-tenth normal. Considered by grades, this defective vision became apparent in the first grade; reached 32 per cent in the second; was lower in the third, but was 24 and 25 percent respectively in the fourth and

¹ De Schweinitz, G. E., Jour. Am. Med. Assn., xvi, 393-97.

fifth grades; was higher in the sixth, and reached 30 percent in the seventh and eighth grades. Recent records of the Child Hygiene Division of the Department of Health in Chicago show that out of 141,811 school children examined for physical defects, 25,299 were found with impaired vision.



The myopic or near-sighted child without glasses struggling to read the ordinary textbook.

of this number, 14,548 cases were so serious as to require attention and treatment. This was a local survey, but the numbers are sufficiently large to justify the conclusion that all those with defective vision should be favored in the public schools by special methods which shall conserve rather than diminish the remnant of vision which these children possess.

We are justified in assuming that in every community there is a group of children with irredeemably defective sight who cannot profit by educational methods suitable for their full-sighted companions. Sometimes the visual defect is not discovered in infancy and early childhood. The child avoids obstacles, plays with its companions, and takes an interest in toys and picture books. He may have enough vision to struggle through several of the earlier grades, but sooner or later it is brought home to the parent or teacher that the child is suffering from an ocular handicap.

Let me briefly relate three cases which have recently come under my observation—cases which brought home to me this serious problem and left me helpless when I came to cope with it.

Case 1. A little girl, aged 9, was found to have a great deal of difficulty in reading; she would hold the book close and at an angle. Nor could she tell what the teacher placed on the blackboard. One optician and two oculists had prescribed glasses. Apparently no explanation had been offered of the reason why glasses failed to relieve. A glance at the eyegrounds showed in the center of each macula retino-choroidal atrophic spots. What little vision this child had was eccentric, and hence not useful for any very fine visual tasks.

Case 2. A boy, aged 12, was brought because his eyes

"rolled round" and because he had "white spots on his sight." After five years of schooling he was still in the second grade. The history indicated that he had suffered from ophthalmia neonatorum. He had the usual sequelae of a neglected case of this disease—an adherent leukoma covering the pupillary space in one eye, a nearly central corneal nebula in the other. There was marked nystagmus. R. V. 20/60. L. V. fingers at 2 feet. All possible combinations of glasses were tried without benefit.

Case 3. A little boy, aged 8, is a partial albino. He has the usual ocular characteristics of this anomaly—light blue irides, great deficiency in retinal pigmentation, and nystagmus. Vision 20/60, either eye. Tinted glasses correcting his hyperopic astigmatism were helpful in the sunshine, but there was no improvement in vision.

What constitutes defective sight? No hard and fast line can be drawn between the sighted and semisighted on the one hand, and the semisighted and the blind on the other. For purposes of classification, defective sight has been defined as "vision not more than one-third nor less than one-tenth with the best glasses obtainable." There are a variety of causes of poor vision, e. g., congenital cataract, retinitis, optic atrophy, etc. Many children with high hyperopia and progressive myopia cannot be made to see well with their correcting lenses and should properly be included in this group.

Children suffering from ocular defects of this sort have, of course, always been enrolled in every large school system. Prior to the period of medical inspection, the reason for the backwardness of any given child did not always appear. All that the teacher and parent knew was that the youngster did not get along well. Even if the defect were discovered, the teacher and parent were



With corrective glasses she has less difficulty.

helpless. The former had no right to exclude such a child from classes and often tried hard to fit the child into the usual educational groove—a process which was no more successful than the attempt to fit a square block into a round hole. At the end of the term the discouraged teacher

had no recourse but to demote the discouraged pupil. The following year the same weary and futile process was repeated. Of course, this sort of thing could not keep up indefinitely and the problem solved itself (if solution it can be called) by the child leaving the school long before completion of the grammar school grades.

When systematic medical inspection began to be the rule in schools in the larger cities, more and more of these cases came to light and the problem began to assume definite shape in the minds of educators. It having been determined that these children could not be educated in the ordinary schools, it was thought that provision might be made for them in schools for the blind. It was assumed (erroneously, as experience proved) that the partial sighted child was to all intents and purposes a blind child, and that the educational methods appropriate for the latter would prove equally effective for the former. This experiment was tried out, for example, at the Perkins Institution for the Blind in Boston; but it was foredoomed to failure. The child's vision may be seriously defective, and yet he sees after a fashion. He is bound to rebel at any effort to fit him into any educational system designed for the sightless.

In the education of the blind the lost sense of sight is replaced by the sense of touch, and to some extent by the senses of smell, hearing, and taste. Many of us endeavor to accomplish by touch alone tasks that usually require the cooperation of eye and hand. The beginner in knit-

"touch typewriting." But perhaps, after all, sight does prove an adjuvant to touch to a degree that is little suspected. It may seem to the experienced knitter or typist that she is wholly independent of vision; but, as a matter of fact, there occur moments of hesitation or uncertainty



This is her brother, who was considered a defective delinquent in the ordinary grade but now that he can see to do his school work is proving himself a good student.

when the sense of touch is deemed inadequate to obviate an impending mistake, and then a lightning glance will insure the correct completion of the task. The same irresistible tendency to supplement by sight the tasks supposedly carried on by touch alone is shown by the partial-sighted when the attempt is made to instruct them by methods suitable for the wholly blind. For instance, it has been found impracticable to teach the raised types of the blind to partial-sighted children: the laborious process of determining the individual letter by the sense of touch is soon abandoned and these children are found straining their eyes in an effort to *see* the arrangement of the raised dots. Thus is promoted the very thing which should be avoided: namely, overstrain of the eyes.

To Segregate Is Mistake

One of the disadvantages under which the totally blind child labors is that as a rule he has received his education in a special school away from contact and association with his sighted fellows. This drawback has been recognized and in some places, New York, for instance, many blind children are educated in the schools for the sighted. New York's experience has been so favorable that other communities have followed suit.

Classes for semisighted children should always be conducted in the regular school buildings, as much of the instruction can be given in the regular class room. During recess the semisighted children are encouraged to mingle with their

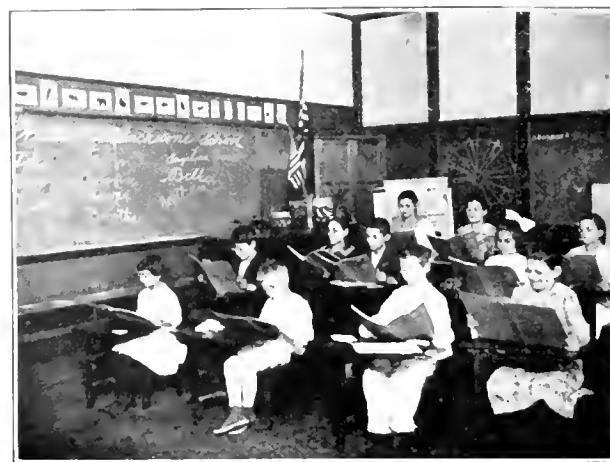


She is now receiving her education in a sight-saving class, where she has an adjustable desk and large typed textbooks.

ting finds that sight and hand must be helped out by mental concentration (and sometimes by facial contortions); but with practice the mind is less and less concerned with the task and finally the fingers do the work with hardly a glance from the eyes. So it is with one who has learned

full-sighted companions and are allowed to indulge in games and play of the less vigorous sort, thus affording every opportunity for contact with the normal sighted, and avoiding undesirable segregation.

I am indebted to Miss Ida E. Ridgeway, super-



Reading lesson with large-typed books in one of Boston's sight-saving classes.

visor of Work of Children, Massachusetts Commission for the Blind, for the following statement concerning schools for the semisighted in this country and abroad:

"In 1905 Germany established the first special class for this type of child. About two years later England, also, established classes known as 'The Classes for Myopes.' The first class in the United States was opened in Boston, April, 1913, and still continues its usefulness in the annex of the Abbe May School in Roxbury. Soon after this, Ohio established several sight-saving classes. I believe they now have eight. In November, 1915, New York City segregated a group of children who were being taught in the public school classes for the blind, this experiment justifying the establishment of eleven such classes at the present time, eight in Manhattan and three in Brooklyn. A class of this sort is about ready to be opened in Rochester, N. Y. In Massachusetts we have nine classes, four under the Public School Board of Boston, two in New Bedford, one in Worcester, one in Cambridge and one in Lynn.

How Class Room Is Arranged

"The classes should combine the most approved methods of pedagogy with every effort to eliminate eye strain. Much depends on the resourcefulness and the spirit of the teacher, as she must be able to adjust her methods of teaching to the individual need of each child under her care. The school room should be particularly well lighted without direct sunlight; the desks should be port-

able, so that the children can shift them to avoid too strong a light which might cause discomfort. There should be ample blackboard space as these children are encouraged to do their written exercises very largely on the blackboard. The paper used in ordinary grades that is, white paper ruled in blue lines, is always eliminated and in its place a large sheet of dull paper is substituted. Instead of using pen and ink the children are encouraged to use a soft large lead pencil similar to those used in kindergarten classes or by carpenters.

"Through the experience of practically every one who has been interested and really knows the work demanded of a teacher caring for a group of these children it is stated that ten children should be considered a proper unit for one teacher to handle. Boston has increased this number to twelve and in New Bedford where no child is included in this class who is doing work beyond the fifth grade, the teacher is handling twenty-two. This however, would not be possible if her class included the higher grades.

"Special attention is given to the handiwork of these children. Typewriting is considered advantageous to all children in the upper grades.

"Children who have been repeaters and a few who have been considered mentally backward have been able to do well in these classes. Although a group of ten or twelve materially increases the *per capita* cost of the children in this group, if, in the long run, it eliminates repeaters and removes the child who is hindering his class through demanding more time from his teacher than he is really entitled to in the ordinary group,



Arithmetic lesson in one of Boston's sight-saving classes.

such a class would surely be justified financially. On the other hand, the economic aspect of this class from the view of sight saving alone is a big item to be considered.

"By reaching the child of school age (up to seventeen years) much can be done toward check-

ing certain eye conditions and diseases which, if neglected, might result in great loss of eyesight, or even blindness, in adult life. As illustration, a child in one of our sight saving classes has high myopia and appeared to be nearly blind when we first discovered her. With corrective glasses her



Sight-saving class in Charlestown, Mass.

vision improved to about one-third of normal and, although the trouble is of a progressive nature, her vision has remained about the same for two years. The father is blind—cause, separation of the retina from neglected myopia. He had not obtained medical advice until his eyesight—all but a dim perception of light and shadow—had gone. We believe his child has been saved from a similar fate largely through the advantages of a sight saving class."

A brief description of one of the Cleveland classes will indicate the care that is taken to safeguard the remnant of vision that the pupil may possess. The school room has abundant light, but glare is eliminated by calcimining the walls in a neutral tone and finishing the desks and wood-work in a mat surface. Each pupil has a black-board attached to his desk.

Conserving the Pupil's Sight

The work is oral, written and manual. Oral arithmetic, history, geography, and language are taught in the regular class rooms. Written arithmetic and spelling are done on the pupil's black board. Textbooks are printed on heavy yellowish paper in thirty-six point clear-faced type. Touch typewriting is taught. In the manual training classes the work is carried on as far as possible without the use of the eyes. The girls receive lessons in cooking and serving, and sewing is taught according to the methods used in teaching the blind.

Cleveland employs a school oculist and only those recommended by him can be admitted to the

class. The teacher in charge receives definite advice from the eye specialist regarding the amount each child may be permitted to use his eyes. Re-examination at stated intervals determines whether the child is holding his own or not. Progressive decrease in vision causes transferral to classes for the blind. This provision for examination and reexamination of the eyes has been recognized as vitally important, not only by oculists but also by educators. Superintendent Dyer of Boston believes that such classes should not be established unless at the same time there are provided ophthalmologists to make periodical expert examinations of the children's eyes in order that the kind of training may be so adapted to the individual child as to improve rather than to injure the fraction of vision he may possess.

What percentage of school children have sight so defective that they cannot be educated in ordinary schools? This question can be answered only in communities where an accurate survey of the ocular status of the school children has been made. In 1916 a careful study conducted by the Massachusetts Commission for the Blind led to some definite conclusions. In eleven cities and towns the vision of 26,164 pupils was taken. Of this number 4.1 per cent had vision of 20/40 or less; 2.5 per cent were neither wearing glasses nor had been examined by experts. Of the two latter classes 0.28 per cent were recommended by specialists for transfer to sight saving classes. I quote from the tenth report, Massachusetts Commission for the Blind: "On the whole our results in



Recreation in one of Boston's sight-saving classes.

the towns which we know most thoroughly this year tend to confirm our last year's statement based on a study of cities that it is probably safe to say that not merely 0.12 per cent, but as many as 0.4 per cent of the whole school population of the state require teaching in sight saving classes. Another investigation of 40,259 school children in

three Massachusetts cities showed 840 possessed vision of 20/50 or less. An expert investigation of 456 children with defective sight (including those helpable by glasses) led to the conclusion that 68 (14.8 per cent) should be in special sight saving classes.

"The semisighted child is discouraged with always being behind his fellow students and develops a consequent carelessness, shiftlessness and lack of confidence. Later his lack of the fundamentals of education and the shiftless habit acquired in a desultory school course must inevitably handicap his industrial life." This statement from a report of the Massachusetts Commission for the Blind coincides with my own recent experience. As a member of a medical advisory board I have had occasion to examine a large number of young men with disqualifying ocular defects, high hyperopes and myopes, sufferers from corneal and retinal diseases, etc., and I have been struck with the large number of these men engaged in less remunerative occupations. Almost always there is the same tale—early abandonment of school because the work could not be done.

Not very rarely the child with defective vision is also mentally inadequate. The question then naturally arises: is or is not the mental deficiency dependent on the visual defect? The affirmative has been maintained by some ophthalmologists. I am old fashioned enough to agree with Guy C. Fernald, who says: "The relationship of mental and visual defectiveness is not one of cause and effect, generally, but one of association. A marked visual defect is a contributory cause in the inefficiency of an individual, but it is not *per se* a cause of mental enfeeblement, since feeble-mindedness is a congenital defect or is traceable almost without exception to some other accident. While the development of the young is retarded in some degree at least by any defect in any of the special senses, yet visual defectiveness is not a direct cause of mental defectiveness." Mrs. A. Everett, teacher under the London City Council, reports as a result of comparative mental tests on partial-sighted children in part time attendance in regular classes that 10 per cent were below, 10 per cent above, and 80 per cent were equal to normal children in the classes in which they worked. The idea of compensating sense development is erroneous. While certain psychologic tests are often in favor of the blind, they are retarded in others and defective vision in marked degree should always be regarded as a handicap to be overcome by special educational methods.

In the handling of special problems connected with the education of children variously handicapped, most of our cities are commendably pro-

gressive. They have established schools for the mentally defective; ungraded classes have been instituted for the borderline, backward, and restoration types of pupils. There are schools for deaf or nearly deaf children, and open air schools are doing wonders in the upbuilding of anaemic and pretubercular children. There are also special classes for truant and unruly boys. So far, there has been very little done toward providing for the needs of the semisighted. Society says, in effect, to these defectives: "You have chosen your handicap carelessly. If you had some other defect, I could educate you."

Ohio leads in this work with classes for the semisighted in seven cities: Alliance, Ashtabula, Cincinnati, Cleveland, Lorain, Mansfield, and Toledo. Massachusetts has provided special classes in Boston, Cambridge, Lynn, Worcester, and New Bedford; New York, in Buffalo and Rochester; and Michigan, in Detroit.

The cost of such special education varies with location, equipment, etc. It is the highest of any special educational work done in the public schools, but considerably less than the cost of education in institutions for the blind. This cost can be further reduced by placing such children as far as possible in classes with seeing children, which has the additional advantage of accustoming them to a normal school environment in competition with those with whom they will be thrown in later life. Such classes should be subsidized by the state in the amount they cost in excess of the cost of educating a child by ordinary methods. Another factor to be considered is that, although the *per capita* cost is greater, there are no "repeaters," and that complicated and expensive problem in the public schools is obviated. In order to secure the best results, the parent should have as complete an understanding as possible of the problem of his child from the standpoint of the school. Friendly visits should be encouraged, and the teacher or school nurse should be ever ready to enlighten the parent to the end that the latter may have a sympathetic appreciation of the child's handicap. The whole aim is to minimize eye strain during school life, to train the semi-sighted child to conserve his own vision, and to give such vocational training as will enable him to become self-supporting.

The vast program for the rehabilitation of our soldiers crippled by wounds received in defense of our country shows the people's will to re-establish in economic independence those who have been maimed. Shall the child handicapped by defective sight not be given that specialized education which will in later years fit him to become a happy and productive citizen?

REMINISCENCES OF A PRACTITIONER

The professional ethics of the general practitioners of England are the fertile soil out of which there will grow an enriched, highly socialized medical science in the future, according to an interpretation by Dr. James Pearse, a noted English physician, who has written a personal retrospective sketch for the *Lancet*. Dr. Pearse relates at length his intimate impressions and reminiscences of more than twenty years. It is such a sketch as almost every physician thinks he may some day write as a record of his professional work and life.

The isolation of the general practitioner in his work and studies, Dr. Pearse calls at once a beneficial source for engendering a wholesome spirit of independence in the individual, while acting also as an effective barrier to the physician's chances of keeping abreast of the progress in specialized branches of medical science.

The prime need of the general practitioner, he thinks, is an extension of the facilities for post-graduate study so that each locality will provide its group of physicians with means and centers through which they may extend their acquaintance with current contributions to scientific knowledge, and at the same time form closer relationships with their fellow physicians.

Of the difficulties of general practice, Dr. Pearse writes:

"A danger associated with the fullness of the practitioner's life is that which may always follow excessive concentration on one subject—namely, a failure of interest in other phases of life. It is illustrated by the fact that few general practitioners retire from practice; the majority die in harness. The reason, to a large extent, is that not many are able to lay aside the means to provide for later years; but a further reason is that work has been so absorbing that there has been too little opportunity for the cultivation of hobbies or outside interests, and thus without the interest of work life would be lacking in zest."

He suggests the devices and methods by which post-graduate studies may be carried on by the physician who has an established practice without interference with his everyday tasks. He says:

"When once a man has developed a busy practice the demands on his time are so continuous, periods of leisure are so scanty, that opportunity for study is but limited. However laudable intentions may be, attainment of necessity lags behind.

Postgraduate Work Too Restricted

"There are three directions in which it would appear that this requirement might to a certain extent be met.

"Facilities for such exist, but only a limited number of practitioners are able to avail themselves of these. Holidays from general practice are rare and refreshing, and no small degree of enthusiasm is needed to forego such for the sake of study. And to leave a practice for any lengthened period is both costly and hazardous.

"Some modifications of the present system seem worthy of consideration. The number of centers where post-graduate training has been developed is limited. The development of such work at other centers would be an advantage, especially if the work were so arranged as to be available to practitioners in the adjacent area without undue absence from practice. Many practitioners who would find it impossible to attend a prolonged session would make an effort to attend a short course—for example, a series on six or eight afternoons or evenings once a week; and in a specially adapted course much might be learned in that limited time.

"A further modification might be advisable as applicable for more rural areas where even the limited attendance above indicated would involve too long absence from home. There might be developed extension lectures in medicine, and a lecturer attend occasionally at a given center in the country for the enlightenment and encouragement of the rural practitioner. True, such lectures could not be attended by a large number, and would not be directly remunerative to the lecturer, but their value might be very great.

"Further, the hospitals might render very material assistance to the general practitioner by developing courses of clinical lectures at times adapted to his convenience. And especially would this be the case if use were made of hospitals not only in the recognized teaching centers, but also of those situated elsewhere."

Similar to the extension work which Dr. Pearse urges in lecture courses and hospital, he calls upon his fellow physicians to bring within easier access of the practitioners in every locality the specialist facilities and a knowledge of their requirements. On this aspect of the physician's world, he makes this comment:

Extension of Specialist Facilities

"An extension of specialist facilities, so that there might be more ready access for the average general practitioner, would be a great boon. Especially is this true as regards the practitioner in the country or the small country town. The city practitioner has facilities at hand, and may have access to them when he will and if he will. His more isolated colleague is by his isolation handicapped; he may send a patient to be x-rayed and have to be content with a photograph, which perhaps he does not understand; he may receive a detailed diagnosis of an obscure heart case, but know nothing of the technique involved; he may send a scraping of a chancre to a pathologist, but the spirochaete may be only a name *Exerto crede*.

"The continuous development of the general practitioner, which is so essential, is impossible without an extension of facilities. But here, again, the middle course is the safest. To spoonfeed the practitioner, to encourage him to depend too exclusively on the resources of others, would be disaster. Isolation or semi-isolation is not without its advantages; it develops a resourcefulness and self-reliance which in many an instance are of more avail than the most up-to-date knowledge."

Dr. Pearse finds good and bad points in the prevailing mode of presentation in medical literature. The main resource of learning and advancement for all practitioners must be in medical literature, he observes.

"The assistance which the practitioner seeks from books," he writes "is mainly in two directions—clinical instruction which will help him in his daily round, and instruction in new developments. As regards the former there has been much improvement in recent years. Time was when there were only ponderous tomes, weighted with unrequired details, which had to be laboriously sifted in order to obtain the essential knowledge. The practitioner does not require the elaborate text-book, but the graphic presentation of the essentials of diagnosis, prognosis, and treatment—the clinical portrait. It is on the clinical lecture of his student days, impressed by the personality of his teacher, that his knowledge of practical medicine is really based, and it is the continuance of such vivid type of teaching that he still desires. That such literature is more in evidence is of good omen, but there is still a tendency to dwell unduly on the rare."

Experience brings to the physician the recognition

of a secondary place that he fills in waiting on and assisting the efforts of nature," says Dr. Pearse. In terms of social units or community groups, he expresses this thought of the practitioner's service to mankind in a prophetic spirit, with a vision of betterment for the future. He voices a creed of optimism, saying:

"The general practitioner who moves amongst various sections of the community, practicing amongst the wealthy and the poor, amongst those well fed and those under-nourished, amongst the well-housed and the ill-housed, amongst the over-worked and those capable of leisure, be they rich or poor, knows that the incidence of sickness and of types of disease vary according to the surroundings and circumstances of his clientele. And experience justifies a reasoned optimism that with wider knowledge, a saner life, and a healthier environment the community will ultimately escape from many ills which now seem inevitable."

LAW FOR THE DOCTOR—THE PHYSICIAN'S LIABILITY FOR ACTS OF HIS PARTNER

BY LESLIE CHILDS, ATTORNEY AT LAW, INDIANAPOLIS, INDIANA*

The partnership relation, while pleasant and profitable at times, frequently carries with it an element of danger, because it is fundamental that one partner is liable for the acts of the other, if committed within the scope of the business.

In the professions, partnerships are met with, in proportion to the numbers engaged, perhaps more frequently than in the commercial world. Professional men presumably are slower to avail themselves of the advantage of a corporate name, which in their case also presents some difficulties and disadvantages, that are entitled to consideration.

This is particularly true of the medical profession; some jurisdictions questioning their right to incorporate, and, in addition their relationship with their clientele being of such a personal nature, that it is difficult of embodiment in a corporate name. Possibly in a great measure because of this, partnerships composed of physicians and surgeons are quite common; therefore, the question of partnership liability becomes, to them, one of great interest and importance.

There are a number of interesting cases in the books bearing on the question, but *Haase vs. Morton*, 138 Iowa 205, is probably as clear a case of partnership liability relative to a professional partnership as they contain. And it might also be termed a borderline case, and probably represents the limit to which the courts will go.

The facts were in substance as follows: William M. Morton and L. B. Morton were physicians engaged in the practice of their profession under the firm name of Morton and Morton. Dr. William M. Morton was called upon to attend the plaintiff professionally.

After an examination he determined on an operation, to which the plaintiff consented, and suggested that it could with greater safety be performed in a hospital. The plaintiff also consented to this and William M. Morton made the necessary arrangements for hospital accommodation.

In conducting the operation Dr. L. B. Morton administered the anaesthetic, and William M. Morton performed the operation; after which William M. Morton left the

operating room for the surgeon's dressing room, leaving L. B. Morton and the nurse to attend to the removal of the patient to her private room.

This private room was on the floor below the operating room, and the patient was placed on a rubber tired car and propelled to the elevator shaft. Arriving there they found the elevator down and the shaft open. Dr. L. B. Morton and the nurse, in attempting to summon the elevator man, left the car for a moment, and it rolled into the elevator shaft and fell, with the patient on it, a distance of about fifteen feet. For injuries alleged to have been received from this fall, suit was brought against Morton and Morton as a partnership.

The trial resulted in a judgment against both doctors in the lower court, and an appeal was taken to the supreme court. The defendant, William M. Morton, denied liability on the ground that whatever liability existed rested on the act of his partner, as he was not present at the time; also, that the removal of the patient to her private room was not within the scope of the business of the firm.

The supreme court in passing upon these contentions said in part:

"While it is shown that neither of the defendants owned or controlled the hospital, it does appear that they made all arrangements for plaintiff's stay there, and a jury would be justified in finding that the defendants as part of their employment undertook to care for plaintiff from the time she entered the hospital until she was ready for discharge therefrom. And while this might not ordinarily include the work of the hospital employee's the doctors might assume the duty of returning the patient to his room, and in such event each member of the firm would be the agent of the other in carrying on the work.

"It is fundamental that each partner is the agent of the firm while engaged in the prosecution of the partnership business, and that the firm is liable for the torts of each, if committed within the scope of the agency."

The court then affirmed the judgment, there being however one dissenting opinion.

But it must be remembered that to charge one physician with the acts of another the partnership relation must exist. The occupation of a common office will not make them partners; neither will the working together on a case as in consultation. And unless there are some very potent reasons for forming such a relationship it is a status that should be avoided.

MAKE INFLUENZA SURVEY IN U. S.

A statistical study of the incidence, chronology, and distribution of influenza during the epidemic of 1918 has been undertaken by the United States Public Health Service. The survey will include all states. Special studies will be made in representative localities to determine the incidence rate, type, duration, and fatality in relation to race, age, sex, and living conditions. The statistics of state health departments will be used to learn the chronology, sex, and age distribution of cases. Certain special groups or communities will be investigated, and an analysis made of reports available from foreign countries. Offices for the investigators have been established under the direction of W. H. Frost, surgeon, and Edgar Sydenstricker, statistician, who will be assisted by Prof. Raymond Pearl, Ph.D., of the Johns Hopkins University School of Hygiene and Public Health, as consultant. Their studies will include an inquiry into the methods adopted in various localities for dealing with the epidemic and for the prevention of the disease. The investigators will report on the preventive measures of other countries as part of their survey.

*The third of a series of articles on "Law for the Doctor," written for MODERN MEDICINE by Leslie Childs.

THE MONTH IN MEDICINE

Survey of Current Medical Literature with Editorial Comment

WALTER W. HAMBURGER, M. D., Editor

CARDIAC PROGNOSIS—ARBORIZATION BLOCK

CARDIAC prognosis is at once the first consideration of both patient and physician. The prognosis, moreover, concerns itself not so much as to whether the patient will recover from his affection but rather with the questions: Will he die from it? and when? Outside of the patient's own personal interest as to the approximate time of his death, his family, his business or professional associates, often vast political and financial interests may be deeply and intimately concerned.

Recent electrocardiographic studies throw some light on this absorbing problem. Robinson¹, in 1912, from electrocardiographic records of seven patients at the time of death from various causes found that fibrillation of the ventricles, similar to fibrillation of the auricles—auricular fibrillation—preceded briefly complete cardiac arrest in one and possibly two instances.

In 1917 Robinson² and Bredeck described a case of ventricular fibrillation in man with cardiac recovery.

Oppenheimer and Rothschild³ in the discussion of the electrocardiographic changes associated with myocardial involvement set forth the electrocardiographic findings of sixty-two cases of so-called intraventricular, bundle branch, or arborization block. This series presented the clinical pictures of cardiovascular renal disease, atherosclerosis, coronary artery disease, angina pectoris, myocarditis, syphilis, acute articular rheumatism, "grip," diabetes, gout, etc. As to the prognoses of these cases, they state as follows:

1. Robinson, G. Canby: A Study with the Electrocardiograph of the Mode of Death of the Human Heart. *Jour. Exper. Med.*, 1912, xvi, 291.

2. Robinson, G. Canby, and Bredeck, J. F.: Ventricular Fibrillation in Man with Recovery. *Arch. Int. Med.*, 1917, xx, 725.

3. Oppenheimer, Bernard S., and Rothschild, Marcus A.: Electrocardiographic Changes Associated with Myocardial Involvement, with Special Reference to Prognosis. *Jour. Am. Med. Assn.*, 1917, lxi, 429.

4. Robinson, G. Canby: The Relation of Changes in the Form of the Ventricular Complex of the Electrocardiogram to Functional Changes in the Heart. *Arch. Int. Med.*, 1916, xviii, 830.

5. Cohn, Alfred E.: Personal communication.

6. Willius, F. A.: Arborization Block. *Arch. Int. Med.*, 1919, xxiii, 4, 431.

"Special emphasis should be laid on the serious prognosis in patients showing electrocardiograms indicative of intraventricular block. Of the 58 showing arborization block, 22 are dead, 24 are alive (of these 4 are in a precarious condition, and 12 could not be traced). Of the patients whose fate is known, the mortality has been 48 per cent within two years. . . .

"There have been 22 other patients suffering from angina that have not shown these electrocardiographic changes; of these, only 1 is known to be dead, 17 are known to be alive and 16 of the seventeen are doing well or fairly well. . . .

"On physical examination two signs have been especially noted: (1) a muffled, poor or practically absent first heart sound, and (2) a gallop rhythm. One is often struck by the fact that the heart is hypertrophied but that the first sound, instead of being blowing, has a muffled quality."

Their final conclusion is interesting: "We venture to state that there is a definite clinical condition to be known as arborization block; that this condition can be diagnosed by the presence of a definite and permanent type of electrocardiogram; and that the condition has a very serious prognosis."

Robinson⁴ describes similar ventricular complexes—widening and notching of the R wave—but does not believe they are necessarily permanent. Cohn⁵ is of the same opinion.

Further recent confirmation of the importance of arborization block comes from the Mayo Clinic by Willius⁶ who states that "arborization block or impaired intraventricular condition is dependent on graphic records for its recognition. It is now generally accepted to indicate disease of the subendocardial myocardium and evidences serious functional cardiac disturbance. . . . The present study was undertaken to determine if possible the significance of this disordered mechanism with especial reference to life expectancy." Willius examined 138 patients with arborization block. His conclusions are as follows:

"(1) Arborization block is a grave disorder of the cardiac mechanism; it entails a large and early mortality (69.6 per cent) in an average of eight and one-half months.

"(2) Disorders responsible for the development of this condition were found to be in order of frequency: (1) infection, (2) degenerative processes, and (3) local nutritional disturbances.

"(3) The relative infrequency of edema was a striking observation.

"(4) The lack of definition and differentiation between the first and second sounds was constant."

Comment.—Comment on these contributions to cardiac prognosis is hardly necessary. We can anticipate with considerable certainty that the next few months will see further interesting studies on this new syndrome of arborization block. More light on the clinical findings is particularly desired, and every physician should so train himself in his examination of cardiac or suspected cardiac patients that new dependable data in history or examination of these patients may be elicited.

At present, the following findings seem to be significant: muffled, poor, or practically absent first heart sound; gallop rhythm; infrequency of edema; lack of definition and differentiation between the first and second sounds; electrocardiographically, widening, notching of the apex, and splintering of the ascending and descending links of the Q R S group, particularly of the R wave, have been established. With such findings the burden of stating a grave prognosis—48 to 69 per cent in two years—must be assumed. However, one cannot help feeling that this high mortality will eventually be decreased, and that as arborization block becomes more exactly known and its pathology and etiology more accurately studied, therapeutic measures for its control will likewise be found.

IMMUNITY IN ACUTE LOBAR PNEUMONIA

Mention of the fundamental work on serum immunity in infectious diseases is centered around the study of the crisis in acute lobar pneumonia. Before the days when pneumococci had been divided into groups distinguishable by their specific serum reactions a large part of the immunity work was unsatisfactory. It was difficult to demonstrate phagocytic or agglutinative properties of the serum as long as workers were unaware of the specificity of the antigen. Following the classical observation of Cole and Dochez, and the subsequent improvement in technical applications of older principles, Clough¹, and, independently, Lister were able to demonstrate definite

phagocytic and agglutinative activity in the serum of pneumonia patients after crisis when tested with the homologous organism; and when tested with heterologous strains, phagocytosis and agglutination occurred occasionally.

The present work deals with new studies on the same subject and practically the same method of technical procedure was employed as has been employed in earlier studies on the same subject. Again, the only difference has been in the employment of pneumococci of specific types. The strains of pneumococci used were usually those obtained from cases of pneumonia and were practically in no instance phagocytizable in fresh normal human serum under the conditions of the method employed; in fact, the organisms remained resistant to phagocytosis for at least several months of artificial cultivation.

The results of the test, both from the standpoint of phagocytosis and agglutination, are very striking. Of 33 cases in which the serum was obtained from pneumonia patients at or shortly after crisis or lysis and tested with the homologous strains of pneumococcus isolated from the same patient, 85 per cent showed definite phagocytic activity while 79 per cent gave definitely positive agglutination reactions. In contrast to these results, serum was obtained from 7 patients, who later died of the disease, with negative results in 6. In 18 of the 34 patients whose convalescent serum was actively phagocytic, tests made during the active stage of the disease were with three exceptions negative and these three exceptions were all obtained one day or less before the crisis. Clough concluded, therefore, that the serum of a pneumonia patient is negative during the acute stage of the disease and that phagocytic and agglutinative activity developed at or near the crisis, occasionally shortly before the crisis, but is often demonstrable only after recovery has definitely set in.

Comment.—Many workers in the field of pneumonia have felt from the clinical picture alone that at the time of crisis there must occur a pronounced change in the serum reaction of the patient. This work of Clough indicates that at this time there develops a new substance in the serum of the patient who is going to get well. This substance makes it possible for the serum to prepare for phagocytic digestion virulent pneumococci of the same type as the infecting organism in the individual case. Clough's results are so definite that there can be no question about the establishment of this fundamental fact.

¹ Clough, Paul W.: Phagocytosis and Agglutination in the Serum in Acute Lobar Pneumonia: The Specificity of these Reactions and the Regularity of Their Occurrence. Bull. of the Johns Hopkins Hospital, 1919, xxx, No. 310, p. 167.

OCCUPATION THERAPY AND TUBERCULOSIS

It is indeed a refreshing and important note to find a man who "from training and experience is influenced by consideration of mental factors" writing about the question of work in pulmonary tuberculosis. Much that has been written on this important subject has paid no attention to the fact that each tuberculous patient is an individual problem, that what is sauce for the goose is not sauce for the gander when discussing this large group of patients to whom society and medical science owes so much more than the group is obtaining. Statistics have been collected by the advocates of a complete rest cure proving that work of the tuberculous patient does not give as good results as does rest; and on the other hand men like Patterson, of Frimley, bring forward figures to prove just the opposite.

Dunton¹ has reviewed the more important contributions to the subject of occupational therapy in tuberculosis and calls especial attention from his review to the neglect in most previous discussions of the psychic factor of the individual patient. Even the absolute bed patient, who is placed on his back with strict injunctions not to get out of bed, is nevertheless given no opportunity to keep quiet because nothing is given him to use up his vital energy or allay his restlessness and worry. Although he is on his back, he may have a very active mind which, unless occupied, will produce considerable mental restlessness followed by more or less motor restlessness, and in this way the appearance of complete rest is not always synonymous with the actual obtaining of such rest.

Dunton, in association with Sloan of the Eudowood Sanitarium, has conceived the possibility of dividing the tuberculous into four groups:

1. Those who show signs of the disease with but few symptoms, who usually recover quickly, but who are difficult to impress with the necessity of sanatorium care.
2. Those showing signs and having symptoms sufficiently marked to make the patients feel that they are sick.
3. Those having extensive signs and symptoms, who have probably been treated for other ailments, the early diagnosis having been incorrect; who frequently have a temperature of 101°; who are desperately anxious to get well and therefore willing to cooperate.
4. The old chronicics who come to the sanatorium as a last resort for treatment, or to die.

They believe that mental content must be secured as a primary requisite for getting well. To secure mental content, each patient must be in-

dividually considered, first as to his physical condition, next his capabilities, and finally, his tastes or interests. When these three factors are sifted down, proper occupational therapy can be instituted with success and with the hope of rendering each patient not only healthier, but better able to carry on his life as a citizen. Not all patients can be given the benefit of occupational therapy, and, according to Dunton, excepting in rare instances it is doubtful if either one of his groups 3 or 4 would be benefited by bed occupation.

Comment.—It is to be particularly noted that the point of view expressed in this discussion differs from the generally expounded view that work of some sort is a necessary factor in the convalescent treatment of tuberculosis. As soon as the patient is put to bed when it is necessary to obtain complete rest, some form of occupation therapy suited to the individual needs of the patient can and should be instituted in a large number of such patients. It is only too true that individualization of the tuberculous patient has not been carried out as a necessary part of treatment. It is only too true that in some sanatoriums, for instance, patients are still fed calories instead of the food which satisfies them psychically as well as physically. It has long been recognized that certain elements of treatment in a sanatorium have had their value mainly in keeping the mind of the patient busy and yet certain sanatoriums still place all of their patients on the same routine. It is to be sincerely hoped that Dunton's suggestions will be carefully followed up by those interested in the treatment of the tuberculous patient.

INTRAVENOUS AND INTRASPINAL THERAPY IN MENINGITIS

BY JACOB MEYER, M.S., M.D., CHICAGO, ILL.

Recent experiences in the various military hospitals have led to the adoption of intravenous injections of antimeningococcic serum. While recognizing the value of such a method in true cases of meningococcemia, Amoss and Eberson² have raised the question as to the possibility and the degree of the passage of antibodies from the blood to the spinal fluid.

The attention of clinicians throughout the country has for some months been concerned chiefly with the observation of serum therapy in meningitis. The importance of the studies of Amoss and Eberson is apparent when it is remembered that recent experiences with meningitis indicate that it is a meningococcemia, and that

¹ Dunton, W. R.: Occupation Therapy and Tuberculosis, Med. Rec., 1919, xcv, No. 23, p. 941.

² Amoss, H. L., and Eberson, F.: Passage of Meningococcic Agglutinins from Blood to Spinal Fluid of Monkeys, Jour. Exper. Med., 1919, xxix, 597.

cases in which the spinal fluid shows no evidence of inflammatory changes are said to have developed meningitis when intravenous therapy was delayed.

Flexner showed that under normal conditions antibodies do not pass from the blood into the spinal fluid but, where the permeability is increased by inflammation, passage of antibodies may take place to some degree. The present investigators find similar results with respect to the agglutinins for the meningococcus. They find that normal monkeys which have received intravenous injection of antimeningococcus serum show no agglutinins in the spinal fluid, but when the meninges are inflamed agglutinins are able to pass from the blood to the spinal fluid. Assuming then that in cases of meningitis in man the meninges are inflamed, it may be reasoned that intravenous administration of serum would exert a protective action on meninges which were not already infected.

On the other hand, the question has been asked by Herrick, as to whether the intraspinal injection of serum does not favor the localization of meningococci from the blood stream in the meninges. As has been remarked, cases have been observed which showed no inflammatory changes in the meninges, as determined by studies of the spinal fluid, but with severe symptoms of infection in which meningococci were cultured from the circulatory blood. It is claimed that the production of an aseptic meningitis by intraspinal injections of antimeningococcal serum in such cases would favor the localization of the meningococcus in the meninges. Amoss and Eberson¹, however, find that in monkeys and rabbits the meningococcus cannot be made to pass from the circulating blood to the aseptically inflamed meninges. Their experiments do not lend support to the view that the intraspinal injections of antimeningococcal serum early in the course of invasion of meningococcus in man and even at a later period at which the meninges do not yet show evidences of inflammation favors its diversion from the blood into the meninges.

These authors are of the opinion that the increased permeability of the meninges and choroid plexus caused by the intraspinal injection of antimeningococcus serum would be more than offset the immunity principles introduced into the subarachnoid space along with serum.

Serum administered by the intraspinal method soon escapes into the blood, and these investigators have shown that the agglutinins dis-

appear from the spinal fluid at the end of twelve hours and appear in the blood as early as the fourth hour. On the other hand, after intravenous injections, when the meninges are inflamed, agglutinins appear in the spinal fluid in thirteen hours and remain in low concentration in the blood at twenty-five hours. After combined intraspinal and intravenous injection the agglutinins remain in higher concentration in the spinal fluid for a longer time than by either the intraspinal or intravenous method alone. These experiments emphasize the advantages of the combined method of serum therapy.

The intravenous administration of serum introduces a great quantity of antibodies into the circulation and thus the meningococcemia is more readily combatted. At the same time, antibody passes to the meninges and may act prophylactically in protecting against the production of a meningitis, or may act on the already inflamed and infected subarachnoid space; but it must be remembered that the quantity of antibodies which are thus transferred is probably very small, and that passage is delayed. The intraspinal administration is therefore to be advocated in addition to the intravenous injections as it furnishes a greater quantity of antibodies, and not only insures protection against infection but is much more efficient in combatting an existing meningitis.

Dr. Persons with Red Cross League

W. Frank Persons of New York City, formerly director general of civilian relief at National headquarters of the Red Cross in Washington, has been appointed director of development of the League of Red Cross Societies by Lieut. Gen. Sir David Henderson, director general.

FAULTY DIET BLAMED FOR PELLAGRA

A direct relation exists between family income, diet, and the prevalence of pellagra, in certain cotton-mill districts of the South, according to the conclusions presented by the United States Public Health Service as the result of a survey carried on among 747 families, living in seven localities of South Carolina, during a period of two years. These families were classified in four groups, and a close study made of the quality of the diet, the relative frequency of pellagra in the separate groups, and the sickness rate, with relation to the income. A deficiency in the supply of the animal protein foods was considered the chief cause of the disease in a majority of cases. The idea that a condition of general debility is a factor in the contraction of pellagra is said to be erroneous, due to the fact that the sickness rate and the number of cases of pellagra in the same dietary groups are entirely out of proportion, and because such a conclusion is not borne out by comparison with groups of non-mill working groups. The survey states: "The pellagra-producing dietary fault is the result of some one or, more probably, of a combination of two or more of the following factors: (1) a physiologically defective protein supply; (2) a low or inadequate supply of fat-soluble vitamin; (3) a low or inadequate supply of water-soluble vitamin, and (4) a defective mineral supply."

Herrick, W. W.: Serum Treatment of Meningitis, *Arch. Int. Med.*, 1918, **xxi**, 541.

Flexner, S.: Accidents Following the Subdural Injection of the Antimeningitis Serum, *Jour. Am. Med. Assn.*, 1913, **lx**, No. 41, p. 1937.

Amoss, H. L. and Eberson, F.: Mode of Infection in Epidemic Meningitis, *Jour. Exp. Med.*, 1919, **xxix**, 665.

DIABETES AMONG JEWS—ITS CAUSE AND PREVENTION

BY ALBERT A. EPSTEIN, M.D., NEW YORK CITY*

THE purpose of modern medicine is prevention, and the best means of accomplishing this is through education. Open discussion of the subject of diabetes among Jews is peculiarly fitting and well considered because the problems which it entails are sociological as well as medical. The modern method of treating diabetes is mainly educational. It consists chiefly in guiding the patients in the mode of living suitable to their condition. Undoubtedly much in the way of prevention can also be accomplished by timely instruction in the conditions which lead to the development of this malady.

Sugar is one of the most important elements of nutrition. It is present in the blood and tissue fluids of every living being in the form of glucose or grape-sugar. Whatever the form of starch or sugar consumed, it is converted within the body into glucose. Its assimilation by the body tissues is essential to the continuation of the normal life-processes. Failure on the part of the body to utilize sugar leads to its accumulation in the blood and its elimination by the kidneys. The loss of this nutriment in the manner described causes a variety of morbid conditions.

Non-Utilization of Sugar in Diabetes

The chain of events which results from the non-utilization of sugar in the body constitutes what is known as diabetes mellitus. It matters little how much sugar or starch is consumed, sooner or later this nutriment is eliminated by the kidneys in part or all, as glucose. Its utilization cannot be promoted by increasing the consumption of such food stuffs; in fact, the greater the amount of starch or sugar ingested the worse the condition becomes. Also, other food stuffs are capable of increasing the production of sugar in the body and interfering with its utilization, so that improper and excessive use of sugarless and non-starchy food-stuffs may also aggravate the condition and augment the excretion of sugar in the urine.

Diabetes mellitus is a nutritional disorder, believed to be due to a functional disturbance of a certain organ known as the pancreas. The cardinal symptom of the disease is the passage of sugar in the urine. It is characterized usually by excessive hunger, thirst, increased frequency in urination, and, too, by the loss of flesh. Many

other symptoms frequently occur which need not be stated here. However, cases are often encountered in which many or all of the symptoms mentioned may be lacking and the condition may go unrecognized for a considerable time.

It is generally stated that this malady is more prevalent among the Jews, some authors contending that it is from two to six times as frequent among them as it is in the non-Jewish population¹.

In the discussion of this particular phase of the subject certain suggestions may be of aid in understanding the conditions which predispose to this disease, and the ways to meet them. It is a pleasant yet difficult task. Its burden arises from the fact that science has not yet revealed the specific cause of the trouble. Modern knowledge, gleaned chiefly from observation of the disease in human beings and from animal experimentation, has taught much concerning it, but we are still far from the goal. Unlike many other morbid states, the immediate cause of this disease is unknown. From the nature of things, therefore, many of the points which we must consider in the discussion of our subject are necessarily conjectural.

Radical Predilection for Diabetes

Is diabetes more prevalent amongst the Jews? If so, why? The Jews have long ago designated themselves as the "chosen" people and for that reason or some other have from time immemorial been regarded, by other races especially, as being uncommonly prone to some diseases and particularly free from others. But diabetes is an old disease. Definite mention of most of its cardinal symptoms is found in the literature of the Chinese of some six centuries B.C. Compared to other contemporary literatures, the Bible and the Talmud are rich in the discussion of medical subjects, yet no mention is made of any of the symptoms of diabetes. Biblical medicine states that the Jews of those days suffered frequently from boils or carbuncles.² It is possible that many such cases had diabetes, but that is a mere supposition. Another condition which is spoken of in the Talmud is Boulimia³, a disease that is characterized by extraordinary, practically un-

*Read before the National Conference of Jewish Charities, Atlantic City, May 30, 1919.

¹ The Jewish Encyclopedia, p. 553.

² Bergel, Joseph: Die Medizin der Talmudisten, p. 45.

³ Bergel, Joseph: Idem, p. 36.

satisfiable hunger. It is possible that some cases of diabetes may have been confused with this disease although in diabetes the hunger is by no means so extreme.

The fact that mention of diabetes is made in the ancient Chinese literature and none whatever in the early history of the Jews is not of mere passing interest. A disease which as a rule is so striking as diabetes in its manifestations, and so distressing to those who suffer from it, could not have escaped the attention of the Hebrew sages. The absence of any allusion to it suggests rather that the disease was either non-existent among them or, what is more likely, one from which they suffered but little.

Diabetes a Constitutional Disease

Diabetes is a constitutional disease and hence it has been assumed that differences in race, food, and manner of living cause differences in the occurrence and the severity of the disease. The literature on the subject is replete with examples and this assumption is supported both by analogy and by direct observation. Thus gout, which is also a constitutional disorder, is common among the Europeans and Americans, but very rare amongst the Japanese and is seldom, if ever, severe or fatal⁴.

That the Jew is peculiarly predisposed to diabetes is a matter of daily precept and common knowledge. From the ethnological standpoint the Jews are regarded as the best example of a people who have retained racial purity. The close adherence of the Jews to their religious tenets as well as the peculiar social and political position which the Jews until very recent times have occupied amongst other peoples has served to give them a state of isolation which has been conducive toward making them more homogenous as a people, and their mode of living uniform in character. History would seem to show that in ancient times the Jewish race was relatively if not entirely free from diabetes.

What circumstance then has been responsible for the remarkable change in this people to render them exceptionally prone to it now? One of two deductions is quite in place: either the mode of living of the Jews in the past few centuries has been so totally different from that of other peoples as to produce a profound and indelible impression upon their physical being such as to be transmitted from generation to generation; or the data upon which the current view concerning the prevalence of diabetes amongst the Jews is based are insufficient and erroneous. Both views perhaps have a share in the origin of the prevailing opinion.

Let us examine briefly what is generally known and believed of the incidence of diabetes among the different peoples and in different localities; and, too, the conditions which apparently predispose to it.

More Frequent Among Jews

The testimony of many physicians who have had a large experience with this disease goes to show that it seems from two to six times as frequent among the Jews as it does among the people around them. Some German physicians have dubbed diabetes, "die Judenkrankheit" or Jewish disease. Reliable statistical evidence as to its excessive prevalence among the Jews is, however, not very abundant and it is equally difficult from existing data to estimate its extent among people of other creeds.

It is reputed to be extremely common among the educated classes of the natives of India and Ceylon, but almost unknown amongst the negroes in Africa.⁵ On the other hand, many cases have been observed in the colored population of the United States. This tends to show that the alleged immunity of the negroes in Africa is by no means absolute or due to ethnic or racial causes. In Italy, too, the disease is quite common among the people, more so in the South than in the North. The differences in prevalence of the disease in two sections of the same country has not been definitely explained. There is abundant evidence that the Jews in Germany are very subject to the disease. In Hungary, also, their mortality from this disease has been excessive.⁶

Comparative Statistics

A few figures are indispensable as relating to its incidence. Auerbach states that of 487 deaths reported in Budapest as due to diabetes during 1902-1907, 238, or more than one-half, occurred in Jews, although they constituted less than one-fourth of the population.⁷ In Frankfurt, Wallach found that the number of Jews who died from diabetes during 1872-1890 was proportionately six times as large as the number of Christians who died from the same cause.⁸ In Prussia, Singer finds that the mortality was six and one-half times larger among the Jews than among the general population and in proportion to the total mortality it was even nine times more frequent among the Jews. It would seem from this evidence that the Jews are more commonly affected. On the other hand, See⁹ observed that

⁴ The Jewish Encyclopedia, p. 554.

⁵ The Jewish Encyclopedia, p. 554.

⁶ Fishberg, M.: The Jews, a Study of Race and Environment, p. 300.

⁷ Fishberg, M.: *Idem*.

⁸ Fishberg, M.: *Idem*.

⁹ Fishberg, M.: *Idem*.

diabetes in France is no more common among the Jews than among Gentiles.

Morrison¹⁰ records 1,775 deaths from diabetes in Boston between 1895 and 1913. Among Jews the ratio of deaths from diabetes to the total number is 18 per 1,000 in contrast to 7 per 1,000 among non-Jews. In other words, in that vicinity diabetes is nearly two and one-half times as common among Jews. In New York City, also, it has been found that the Jews apparently suffer from this disease more often than others. Rudisch¹¹ has investigated the morbidity from diabetes from the records of Mount Sinai Hospital of New York City and compared it with that of non-Jewish institutions. He comes to the conclusion that it is nearly three times as prevalent among Jews as among Christians. Also, he adds that while the total number of patients admitted to Mount Sinai Hospital is three times as great as the number of patients of German origin, the striking feature is that of the diabetic patients those of German origin are six to one to those who are Russian. He ascribes the disproportion to the difference in social status. The conclusion is questionable and will be referred to again.

This was so in 1899. For purposes of this presentation the records since that date have been reviewed and conditions seem to have changed considerably. The accompanying chart (Table I) is taken at random from the statistics of the hospital and shows the marked differences in the number of diabetic patients of different nativity who enter the hospital. The predominance of diabetic patients who are Russians is in marked contrast to the figures which Rudisch obtained in a similar survey twenty years ago.

The statistics upon which our opinions of the relative frequency of diabetes in Jews and others are based cannot as yet be regarded as final. It is obvious that the discrepancy between the figures of Rudisch of 1899 and those presented herewith is only apparent, and is due to a difference in the character of the population from which the hospital draws its patients from time to time. The facts presented demonstrate what little validity statistics possess as gathered by individuals from their limited experience or from circumscribed sources. It is a suggestive commentary on the values of conclusions reached concerning the incidence of this or that disease from insufficient or fragmentary evidence. One can prove anything by statistics not sufficiently analyzed.

Objection might be raised to this criticism of medical or vital statistics, and it may be regarded as irrelevant to the question of incidence of diabetes in Jews, but judging from the trend of more

recent observations it is likely that the belief concerning the greater prevalence of diabetes in Jews may be no more than a tradition without foundation in fact. One can see how fallacious it would be to concede from statistics tabulated herewith that Russian Jews are more prone to diabetes than German Jews or those from any other quarter. Yet a conclusion of like character concerning the German Jews was reached by an authority on the subject on evidence equally faulty. What is true of this is also true in a large measure of the broader claim concerning the incidence of diabetes in Jews and non-Jews.

The statistics of death rates which are available are not comprehensive enough to warrant definite deduction. The records on the morbidity or incidence of the disease all agree that Jews supply an extremely large quota of patients suffering from diabetes but the figures available on this matter cannot be accepted without reservation, particularly those from foreign sources. They are mostly taken from patients treated in health resorts and sanatoriums, where well-to-do patients from all parts of the world are wont to flock for relief. While of other Europeans mostly the rich and prosperous come to these places, as Fishberg¹² rightly states, it is not so with the Jews. Besides the prosperous there come also many Jewish patients who are poor, all seeking a cure from the hands of some famous physician. It is clear that they swell the proportion of the Jewish diabetics on the books of the physicians at these resorts.

Here in America statistics on relative death rates from this disease are still too small to be of

TABLE I
DIABETIC CASES
MOUNT SINAI HOSPITAL, NEW YORK CITY, 1914-1917

Nativity	1914	1915	1916	1917	Totals	Totals for 4 years (per cent)	Quota in hospital (per cent)
United States ...	2	10	16	8	36	12.0	16
England	1	..	1	2	4	1.0	..
Ireland .....	..	2	1	..	3	1.0	..
Italy	1	1	..	2	4	1.3	..
Roumania .....	..	4	1	4	9	3.0	..
France .....	..	..	1	..	1	0.3	..
Russia	19	56	48	45	168	56.0	45
Austria-Hungary.	13	14	10	6	43	14.3	15.5
Germany	4	2	3	4	13	4.1	5.0
Denmark .....	..	..	1	..	1	0.3	..
Turkey .....	..	..	1	..	1	0.3	..
Unknown	1	2	6	7	16	..	..
	—	—	—	—	—		
Totals	41	91	89	78	299		

any account; but it appears that here also there are relatively more Jews than non-Jews suffering

¹⁰ Morrison: Boston Med. & Surg. Jour., 1916, clxxv, p. 54.

¹¹ Rudisch, J.: Mount Sinai Hospital Reports, 1898-1899, pp. 26-29.

¹² Fishberg, J.: The Jews, a Study of Race and Environment, p. 300.

from diabetes who are under observation and treatment. But does this constitute reliable evidence that diabetes is more prevalent among Jews and warrant the broad generalization that it is due to racial proclivities? The explanation is to be sought in several circumstances, the first of which is a difference in temperamental characteristics. There is an apt saying in German which cannot be suitably translated, and I will beg your indulgence for quoting it in the original language; "Wenn der Jud Durst hat, lässt er sich auf Zucker untersuchen, wenn der Christ Durst hat, trinkt er." This epitomizes the marked contrast between the attitude of the Jew and Gentile toward disease in general. The Jew has a horror of disease and of death and is more apt to magnify than minimize his ailments. He seeks medical advice on the slightest provocation. He is anxious about himself, demands an explanation for his symptoms, and often is not content with one opinion. The Gentile on the other hand discredits his maladies, and goes to the doctor only when forced to do so by great suffering or disability. He discounts the signs of disease and often interprets symptoms according to his own imperfect understanding. He, therefore, seeks relief for his symptoms far more frequently from nostrum vendors and spiritual healers than the Jew.

The effect of two such opposite tendencies on medical statistics is quite obvious. The Jews apply for medical advice in relatively greater numbers. A realization of this difference between the Jew and others affords an explanation for the fact that Jews furnish a relatively larger quota of diabetic patients.

Factors Contributing to Diabetes

There are other causes of a more serious kind which contribute to the discrepancy. One of the great dangers of diabetes is its insidious character. There are numerous cases of diabetes which present no obvious symptoms. Persons so affected do not become aware of their afflictions until the malady is discovered by accident, for example, when a physician is consulted for some ailment which may be in no way connected with diabetes, or when life insurance is applied for. Under such circumstances the condition is discovered only by examination of the urine. When that is not done the malady goes undetected.

Another circumstance which undoubtedly contributes to the alleged disproportion in the incidence of diabetes among Jews and non-Jews is the fact that the Jews are and for many years past have been preëminently city dwellers. As such they have always had ready access to advanced medical opinion. It is generally claimed

that city dwellers are more prone to diabetes than the inhabitants of rural districts but that difference may be due merely to a difference in the mode of living, or it may be that a difference in medical standards and medical methods in the city as compared to those of the country has a share in causing a difference in the statistics? The latter view seems probable. This argument applies with equal force to the belief that there is a difference in the incidence of the disease among different strata of the same people.

For example, it is stated in reference to the inhabitants of Ceylon that the disease is more common among the upper classes. Much has been made of this point in discussions on the subject. It requires no great stretch of imagination to see that the upper classes are more likely to seek medical advice when suffering from any ailment. Until recently hospitals and dispensaries were not in great favor with any class of people and competent private medical advice was a luxury, resorted to only when unavoidable.

Recent Increase in Diabetes

It is known that the number of reported cases of diabetes has recently increased tremendously among all classes. Joslin¹³ states that "if diabetes should continue to increase in the next thirty years at the same rate as statistics show it has increased in the past thirty years, it would rival tuberculosis as a cause of death, and if this rate progressed for another generation diabetes would be responsible for almost the entire mortality of the world. Such a rapid increase is evidence in itself that a fallacy exists somewhere in the statistics." Convincing proof exists that the rise is not due to increase in the incidence of diabetes, but to a greater frequency in the recognition of the disease and the consequent improvement in the vital statistics on that point.

The fact that a disease is not recognized is not proof that it does not exist. The reputed prevalence of the disease among Jews is to be ascribed in large measure to the fact that they are prone to seek competent medical advice for their complaints. This view is further supported by the fact that Jews appear to tolerate the malady better than other people. Thus diabetes is a condition to which the Jew is believed to be unduly susceptible, and at the same time to be very tolerant of it which is paradoxical to say the least.

Specific Cause Unknown

In discussing the causation of diabetes, it must be remembered that some fundamental disturbance of nutrition is at fault, the true nature of

¹³ Joslin, E. P.: Treatment of Diabetes, 1917.

which is not yet known; but some factors are recognized as being provocative of the disease. Only those need be mentioned which have a bearing on racial characteristics. They are: (1) heredity, (2) obesity, (3) dietary excess, (4) strenuous life, and (5) nervous element.

Like some other diseases of obscure or unknown causation diabetes has been and still is attributed to a peculiar diathesis or proclivity of the persons affected. As our knowledge improves it may be found that it is not any racial proclivity which renders the Jews especially prone to diabetes. Certain habits of life, diet, occupation, and social environment may all react in a deleterious manner upon individuals of any race or creed who are endowed with a labile nervous system and defective constitution so as to disturb the nutrition. This is true of most nutritional disorders.

Heredity and Diabetes

On the assumption that diabetes is more common among Jews than other people various reasons have been given to account for this prevalence. Chief of these is the history of heredity. If the tendency to diabetes were a racial characteristic of the Jew, heredity would naturally be an important factor. The Jews marry exclusively among themselves and even close relationship is for them no barrier to marriage. As inbreeding is known to accentuate physical and other defects, it is reasonable to suppose that the influence of heredity should be greatest among the Jews. At first glance of the statistics which are available on this point it would appear to be true. Joslin¹⁴ finds among a little over a hundred Jewish patients that 27 per cent showed the presence of diabetes in parent or other members of the same family; whereas, out of the total number of his diabetic patients, numbering 1,187, only 21 per cent showed a similar tendency. On purely theoretical grounds a larger disproportion would be expected between the two sets of figures. It is obvious that the number of cases, particularly his Jewish patients, is insufficient for a definite conclusion on this point; yet Joslin's series represents the largest number of diabetic cases in the literature observed by any one man. Moreover, as Joslin himself states, "it is easy to exaggerate the importance of heredity, for diabetic patients naturally would be more liable to know of the presence of diabetes in the members of their families than would patients who did not have diabetes." At any rate, far better evidence of the predominance of the hereditary factor among the Jews than that which we possess is required in order to prove that racial proclivities play the part commonly assigned to them.

No great experience in diabetes is needed to discover the close association of obesity or stoutness with that disease. The presence of excessive fat or its antecedent history is encountered in a large percentage of the cases which come under observation and treatment. Joslin¹⁵ places the concurrence of obesity and diabetes at 40 per cent of the cases. My experience would seem to indicate that the two conditions are associated even more frequently, principally because of a larger proportion of Jewish patients in my practice. The Jews are commonly obese. They interpret fat as a sign of good health, but it is a serious business to get fat. Of 308 applicants for life insurance rejected for obesity, Romanelli reports 21 per cent as having sugar in the urine. Particularly serious is it for an individual of slight stature to put on weight which would be excessive even for a large frame. Authoritative vital statistics show that the prospect of life of individuals of a given age who are obese is far below that of individuals who are normal or somewhat below normal in weight for their height and stature.

Closely associated with obesity as a predisposing factor in diabetes is the question of dietary excesses. It is an erroneous assumption that the consumption of carbohydrates, *i. e.*, starchy food in large amounts, is conducive to the development of diabetes. It is the excess of food rather than preponderance of carbohydrates which does the harm. Indeed, it seems that a high percentage of starchy food in the diet does not predispose that way at all as is illustrated by the fact, previously mentioned, that diabetes in the Japanese is not very common, nor even very severe. That is so provided the amount of food consumed is not in excess of the needs of the body.

In respect to food it might be said without fear of gainsay the Jew is over indulgent. The high proportion of stout people among them is in itself good proof that they consume more food than is warranted by the body requirements, for the physical habits of the Jew are usually such as to make the natural food requirement rather low. His occupations are sedentary and he rarely selects pursuits which require the expenditure of great physical effort. In sport and exercise he indulges but little, and that only on rare occasions.

A poor musculature usually accompanies obesity. A poor musculature also results from physical inactivity and lack of exercise. One-half of the sugar in the body is stored in the muscles and a large part of it is used by them. Therefore it is not strange that fat people so often develop diabetes.

¹⁴ Joslin, E. P.: Treatment of Diabetes. 1917.
¹⁵ Joslin, E. P.: *Idem.*

A strenuous life has been considered by most authorities as of importance in the development of diabetes. That this is so cannot be doubted. One very frequently sees the development of diabetes in persons, particularly young persons, who exert great effort in the discharge of their duties or in the pursuit of personal ambitions. This applies equally to individuals of all races and creeds, but especially so to the Jew, for no race of people is more ambitious, or more eager to assert themselves individually than the Jew. He is not fond of cooperation or organization. He prefers to shift for himself and bear all the burdens on his own shoulders. He makes his life strenuous almost by preference and enters the struggle where it is most intense—namely, in the city. The Jew is preeminently a city dweller, partly through force of circumstances which surrounded his past, particularly since the beginning of the Christian era. His mental make-up is the result of such environment.

Of the known causes of diabetes, shock, fear, or intense emotional distress holds first place. It is obvious that nervous individuals would suffer the most under great stress. This is well illustrated by recent tests on young individuals undergoing severe class room examinations, a large number showing the presence of sugar in the urine. There is good authority for the statement that sugar in the urine is found more and more frequently in young individuals undergoing physical examination for life insurance. Nerve instability is often associated with the presence of sugar in the urine, an observation encountered with ever increasing frequency in insane asylums.

The occasional presence of sugar in the urine of individuals when suffering from great emotional or psychic stress is not proof of diabetes; it merely indicates that in predisposed individuals nerve irritation is capable of exciting the elimination of sugar through the kidneys. Whether such accidents finally terminate in a true diabetes cannot be definitely stated, but it is reasonable to suppose that when the nerve irritation is sufficiently serious, or the shock sufficiently prolonged, a true diabetes may develop. Many of our histories trace the time of onset of the symptoms of diabetes to some great emotion.

Cumulative Psychic Disturbance

That the Jews are an extremely high-strung and nervous people cannot be denied. The frequent occurrence of neuroses and psychic disorders of all kinds among them is well recognized, but that this fact is due wholly to a racial characteristic cannot be admitted. It is far more likely that it is the product of sad experience.

History supplies enough facts to account fully for the instability of their nervous system. The conditions under which the Jews have lived for many centuries, particularly during the middle ages, have been such as would shatter the most resistant nervous system. We know what baneful influences suffering and misfortune can exercise on the mental and physical being of man. The recent war affords many sad examples of that. How much more profound must that influence be on a people who for very many generations, year in and year out, from the cradle to the grave, have endured oppression, privation, and every possible mental distress! The emancipation of the Jew, which is only of recent date and not yet complete, could not come about without some effect on a nervous system already unstable. The transition from the state of isolation and oppression of the past to the freedom of the present has been too sudden not to react like a shock. With restrictions removed their emotions have no bounds. They laugh and weep aloud. They have new desires and new ambitions. Always restless and never content, they strive and thrive in the face of many difficulties but at the expense of their physical being.

These circumstances have produced many of the factors which predispose the Jew to diabetes. One cannot undo in a brief space of time the effects of centuries. The characteristics which the Jew exhibits are acquired not racial, and the marvel is that he does not suffer from diabetes more frequently.

Education Provides Relief

Fortunately, the Jew is interested in his welfare and by virtue of this fact can be readily taught the means by which he can preserve his health. He must be made to understand that his predisposition to diabetes is not a racial stigma from which there is no escape. He must be informed that he possesses many attributes which render him more vulnerable than other people, but that he can overcome them by properly directed effort.

For the reasons presented the Jews possess many attributes that predispose to diabetes and on purely theoretical grounds should contribute a larger quota of individuals suffering from this malady. The available data would seem to confirm this supposition but this statistical evidence is fragmentary, conflicting, and unconvincing.

For reasons of prophylaxis or prevention it is safer to assume that they actually do fall prey to this disease more often than non-Jews, but it must be clearly understood that this predilection is through circumstance, temperament, and

choice of habits—all controllable conditions—rather than through any racial proclivity.

Moderation in the mode of living, mental poise, and physical self discipline are attributes which the Jew must develop in order to lessen any existing tendency to nervous instability and to nutritional disorders.

The practice of undergoing a physical examination once or twice a year at some public institution or at the hands of a private physician will aid in discovering diabetes in its earliest stages, when it is most amenable to treatment. That is the best form of prophylaxis or preventative medicine and the most practical method of avoiding and controlling diabetes in all races.

MAKING REHABILITATION OF DISABLED A PERMANENT PROGRAM

Training centers for the disabled of industry and physiotherapy departments in all hospitals that serve large communities are projects which Col. Frank Billings, M.C., United States Army, wishes to see carried out in the near future as a means of giving permanence to the methods and program of the army for the rehabilitation of disabled men, over which he has exercised supervision in military and government hospitals.

The adaptation of vocational studies and physiotherapy in the military hospitals has done much to improve the morale and maintain discipline, and has been effective in preventing hospitalization, according to Colonel Billings. He believes that similar good results may be expected from the application of the same methods in the rehabilitation of the disabled of industry.

The problems, difficulties, methods, and results of the government's rehabilitation program for disabled soldiers are set forth by Colonel Billings in an article on "Rehabilitation of the Disabled," appearing in *The Journal of the American Medical Association*, issue of May 24, 1919. The paper was prepared as an address before the Institute of Medicine, of Chicago. Part I discusses the rehabilitation of the war's disabled, and Part II relates to rehabilitation of the disabled of the industrial army.

The contact which hundreds of American medical officers, medical enlisted personnel, and nurses have experienced in the practices of modern military medicine and surgery in the field and in the convalescent hospitals; their first-hand knowledge of preventive methods as employed in the armies of the United States and the Allies in the control and prevention of communicable diseases, injuries and infection of wounds, and acquaintance with the manner of dealing with difficult conditions of camp sanitation and waste disposal, mean that the medical personnel of the army will return to civilian life prepared to give the benefit of their combined knowledge and experience to the improvement of health standards in civilian life and in the industries.

Their training and their experience in modern military medicine and surgery represents a knowledge of standards and methods that are the outgrowth of the aggregate experience of the medical departments of the armies of the Allies and the United States, including cooperative research and clinical conferences.

The army medical officers were successful in reducing to relatively small proportions the occurrence of gangrene and other serious types of infection in open wounds, with

a consequent reduction of disabilities through the loss of legs or arms.

The successful application of lung surgery at evacuation hospitals and the saving of life that resulted, Colonel Billings declares to be one of the remarkable events of the last year of the war.

The application of knowledge gained by military clinical experience in the treatment of "shell shock" cases, saved thousands of men from going home to a life marred by some type of mental and nervous disability, and probable dependency. The payment of pensions to this class of invalids was avoided, and a loss was turned into a gain, by sending the patients back to lives of usefulness in industry.

The Surgeon General of the Army has stated that soldiers injured in combat were cared for with such success that 85.5 per cent were restored to duty and returned to combat service, and 5 per cent were made fit for special or limited duty in noncombatant service. In other wars the proportion of men permanently disabled and killed, as compared with the injured who were returned to duty, has been the reverse of the percentages cited.

Among the remaining 10 per cent were the blind, the deaf, patients with amputation of limbs, serious maxillo-facial injury, serious peripheral nerve injury, empyema from trauma of lung or pleura, and other surgical conditions. For the victims the educational and vocational branches of the government rehabilitation enterprise have made special provision for physical reconstruction.

The fact that only 10 per cent of the disabled could not be returned to duty is due to the efficiency of the army methods in the application of curative work, physiotherapy, graduated exercises and military drill, and carefully planned training and play. A large number of the 10 per cent who were unfit for further military duty will be returned to civil life in good health and will be prepared to become self-supporting through the vocational training they are now receiving.

That equally efficient application of restorative methods may be adopted by industry, and should be applied, sums up the study which Colonel Billings presents on the subject. He states the proposition emphatically, in words as follows:

"The application of mental and physical rehabilitation to sick and disabled soldiers by practically all of the nations engaged in the war has proved so successful and beneficial that it imperatively demands the application of like measures for the benefit of the disabled of the army or of the industrial world."

The Federal Government and the states should standardize the measures for the prevention of injuries, accidents, and disease, and should enact legislation making compulsory the application of these standards, Colonel Billings declares.

"Many industrial corporations," he says, "have already learned the value of the application of measures of disease and injury prevention. Better sanitary conditions have been established and safety devices adopted which have been of the greatest value to employer and employee. These measures of safety provision should be standardized and universally applied, under a law of compulsion."

The hospitals would provide the starting point of such a program of rehabilitation by the establishment of departments of physiotherapy, by maintaining departments properly equipped, by standardizing, and by assisting where possible in the vocational training of the disabled. In the opinion of Colonel Billings, the field of vocational reconstruction should be reserved to the training centers which he proposes.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

SOCIAL WORK. Essays on the Meeting-Ground of Doctor and Social Worker. By Richard C. Cabot, M.D.*

The profession of the social worker did not develop from the exalted motives of the charitably inclined who desired to help those less favorably situated than themselves, but was the outgrowth of the needs felt in every avenue of effort for public betterment. The educator traced his failures to cases of malnutrition, of dullness due to conditions beyond the pale of the schoolroom which must be understood if his work is to be effectual; the judge of the juvenile court found he could not pass judgment on a case without details of the circumstances and temptations preceding the offense; dispensary workers found drugs of no avail unless food and sanitary conditions were right at home; and physicians could not even diagnose their cases unless the social and industrial as well as the clinical history was taken.

For the time is past when physical ills are regarded as mere physical disorders to be remedied by a pill or a powder; they are no longer regarded as isolated "happenings" but as the logical outcome of combined physical, social and economic indiscretions which must be diagnosed and corrected by hygienic methods before a hope of cure can be entertained.

The volunteer charity worker first attempted to fill the need for this intermediary between the dispensary, the court, the educator and the home, but the exigencies have developed a vast army of trained social workers whose functions are so important as to require persons of the highest caliber, whose mentality is capable of the highest degree of intellectual unbiasedness, whose experience is enough broader than that of those they seek to help as to enable them to find self-help, and not a weakening prop in the social agency; and whose motive is from the fullness of a cultivated heart and mind that must perfuse *share* its equipment, and large enough to gain while giving.

It is not an easy calling. Even with all these qualifications, the service must be directed by the physician, the man of science who admits that the success of his work is measured by the degree of cooperation he is able to excite and maintain in his efforts to discover disease causes, whether organic, economic, or mental; and to change the patient's way of living into a régime that means health for him, or the best adjustment possible for him.

Dr. Cabot's delineation of the whole field is classic. His various chapters on history taking, the effort to disclose the historical background, or sequence, of what the unscientific mind is inclined to regard as accidental; the searching out of real economic needs, giving the patient courage to face his own problems and solve them instead of offering him a temporary anodyne either in the form of

drugs or economic help; the teaching that not his physical environment counts so much as his own mental reactions; the steadyng of purpose and finding of personality by giving the mental derelict his bearings; the universality of fatigue, which becomes physical disease when cumulative or when referred to one particular part of the body or one weak or predisposed organ, and which becomes mental disease when accompanied by discouragement and is relieved by making a success of something, or may become social unrest when overemphasis is placed on industrial conditions and resentment aroused against those supposedly responsible and is relieved by right conditions, chiefly by right thinking and broadened activities.

"The whole human race is too big for its jobs. The industrial system is altogether too small to fit us; a large part of our powers remain unused. Therefore, the purpose of our time for rest and recreation, our evenings and our Sundays, should be to even up that balance, to use the part of us that is not used at other times."

Each chapter on these phases of social work contains the most definite help and inspiration for the social worker, and especially in its tendency to remove the overweening seriousness that envelopes some social workers and to make of society and social workers a band of cooperative self-helpers. It is most opportune in its advocacy of honest work and the fundamental and ultimate rightness of things, and the permanence and constancy of all constructive forces. Read the book.

A TEXT-BOOK OF PATHOLOGY. With a Final Section on Post-Mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M.D., LL.D., and T. Mitchell Prudden, M.D., LL.D. Eleventh Edition, revised by Francis Carter Wood, M.D., director of the Pathological Department of St. Luke's Hospital, New York, and director of cancer research, Columbia University. 8vo., cloth, pp. 1,354, illustrated.‡

The eleventh edition of a text-book that has long been a favorite with the student and practitioner of medicine and surgery, is welcomed, since its revision brings it up to date. The revision of the chapters on tumors, on the urinary organs, on the reproductive organs of the female, and on the bones and joints, especially has been made very complete. Teachers of pathology, particularly, will appreciate the discussions of pathological physiology or pathology of function. The work includes a chapter on autopsy technique and on the methods of preparing pathological specimens.

Considering that this book includes both general and special pathology, it presents in a most concise form with many well-chosen illustrations, a most complete exposition of pathological anatomy, and it can be warmly recommended to the student and practitioner.

The discussion of the recent advances in our knowledge

(Continued on Adv. Page 22)

*Houghton Mifflin Company, Boston, 1919, \$1.50.

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BOOKS OF THE MONTH

(Continued from Page 276)

of the pathology of the spleen and lymph nodes is particularly interesting, especially that of Hodgkin's disease and of hemolytic icterus. The effects of exposure to the roentgen and radium rays, and the explanation of their mechanism in the treatment of tumors is very clear and helpful.

HARRY JACKSON, M.D.

THE HUMAN SKELETON. An Interpretation. By Herbert Eugene Walter, Associate professor of biology, Brown University. 214 pp., 175 illustrations.*

The little volume cannot be considered as a serious scientific effort, but only as an interesting and well written story in which the bones of the body play the leading role. The beneficial results of popularizing science is doubtful. Such works are vague and superficial as far as science is concerned and therefore of necessity must attract the interest of the reader because of the rapidity of movement and a free use of the spectacular.

The author excuses the appearance of his book upon the grounds that in as much as each person possesses a skeleton of his own a better acquaintance with it should constitute a source of intellectual delight and satisfaction; and because the layman usually regards a consideration of his "insides" as an indelicate subject, and forbidding to one simply in quest of satisfaction of natural curiosity. The book is a popular equivalent of the excuses.

H. W.

THE ELEMENTARY NERVOUS SYSTEM. By G. H. Parker, Sc.D., professor of zoology, Harvard University.†

This book brings forth the results of experimental work on the development of the nervous system beginning in the lower forms of animal life. The author begins with the development of the effector or muscular system in sponges and leads up to the receptor-effector system in the coelenterates, where exists the first evidence of receptive protoplasm which in its way represents the central nervous system in higher life. In the latter there is a central nervous organ or adjuster which in the earlier forms is absent. As one ascends the scale, the author states, the nervous elements recede from the surface of the animal to a deeper location, and thus become more and more protected. With this evolution, also, is the formation of the synaptic nervous system made up of primary motor neurons extending from the central organ to the muscle and the interneuronal fibers or neurons connecting one part of the central nerve apparatus with another. To one especially interested in the anatomy of the central nervous system of man, this book makes a very interesting study.

A TEXT-BOOK OF PHYSIOLOGY. For Medical Students and Physicians. By William H. Howell, Ph.D., M.D., professor of physiology, Johns Hopkins University, Baltimore. Seventh Edition thoroughly revised. Cloth, 8vo., 1,059 pp., 307 illustrations.‡

Howell's work must still be considered the leading American text-book of physiology. The seventh edition bears no fundamental change as to the arrangement of material, or the general principles of presentation. However, the work has been thoroughly revised and brought up to date as nearly as is possible. The text is lucid and the manner of presentation is direct and forceful.

But one criticism might be offered and that is the tendency of the author to compliment the mentality of the student by not drawing general conclusions in regards to

(Continued on Page 24)

*The Macmillan Co., New York, 1918, \$1.75.

†J. B. Lippincott Co., 1919, \$2.50.

‡W. B. Saunders Co., Philadelphia and London, \$5.00.

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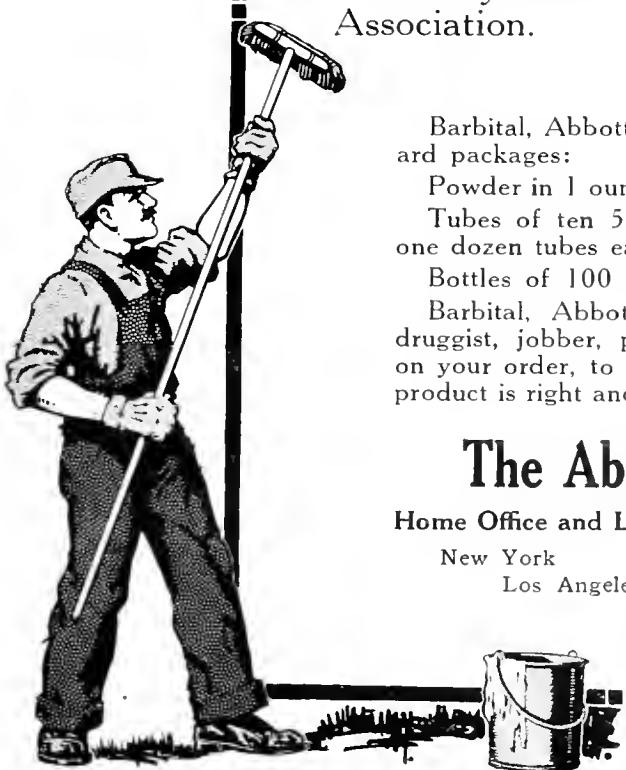
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BOOKS OF THE MONTH

(Continued from Page 22)

disputed points and opposing theories. Such a tendency is highly valuable for the advanced student, but it tends to weaken the beginning student in his beliefs of the accuracy of the science and its fundamental value as an aid to a proper understanding of allied subjects of medicine. However, as the author explains, the best that a text-book can hope to accomplish is to give as clear a picture as possible of the tendencies of the times. A careful review of the text will assure one that such has been accomplished in an admirable manner.

Physiology is a rapidly growing subject which often requires readjustment of its theories. The thinking student should rapidly appreciate this condition and learn to evaluate data and draw conclusions from the facts or evidence presented. Dogmatic statements and submissive acceptance of such, especially where theories are concerned, can never advance science. Hence, the criticism offered above applies more to the reader than to the author of the book.

H. W.

THE PRINCIPLES OF MENTAL HYGIENE. By William A. White, M.D. With an introduction by Smith Ely Jelliffe, M.D., Ph.D.*

This is a book of which the last chapter may be read first without a loss of interest in the story as it gives a comprehensive view of the author's thesis which finds in primary physical reactions to environment the beginnings of motives, and in the conditioned and coordinated reflexes the groundwork of personality. The integration of the individual is accomplished by stages in the biologic development: there is first the simple physical reaction to environmental stimuli; then comes the physico-chemical response to stimulation; later on functional and psychological adaptation; and, finally, integration and social adjustment.

The course of development depends upon the needs of the organism as well as upon the manner in which it reacts to outside influences. Motives grow out of the reactions, and "conduct" is the sum total of the whole biologic process, the motives for the most part being unconscious, instinct in most cases governing rather than reason. Causes for variations in conduct are to be sought in the history of the individual as an atypical unit rather than as a conscious violator of the established standards of the herd.

For this reason the custom of present day society of punishing criminals by violence and repression is unintelligent, for just as arrested progress at certain stages of physical growth results in developmental defects, so at certain transitional periods may the psyche fail of integration and thereafter be limited to the psychological level where progress was arrested. Social inefficiency really means mental deficiency, the defectives stopping at a lower level. Asylums, prisons, and poor houses are filled with the failures in life, social members who cannot live in the community as useful citizens; they are incapable of adequate adjustment.

It is the function of mental hygiene to study these conduct reactions, institute corrective measures where there is possibility of improvement, and, also, to determine when such individuals can never arrive and so spare society the tremendous waste in futile efforts at reform.

Perhaps one of the most interesting phases of the argument is in the relation of physical disorders to the

(Continued on Adv. Page 26)

*The Macmillan Co., New York, 1917, \$2.00.

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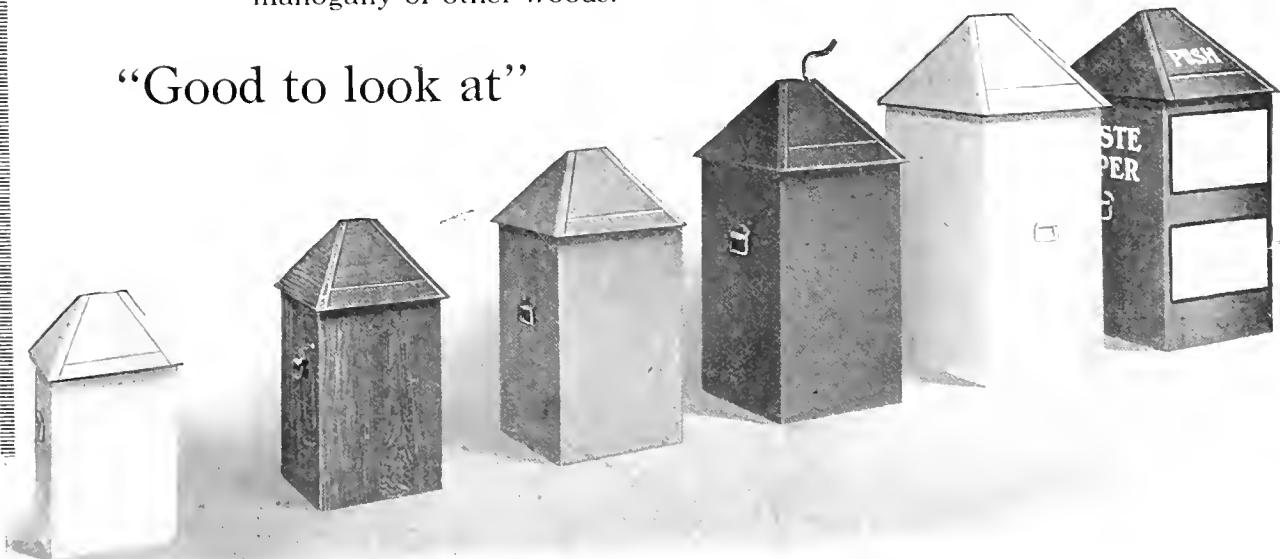
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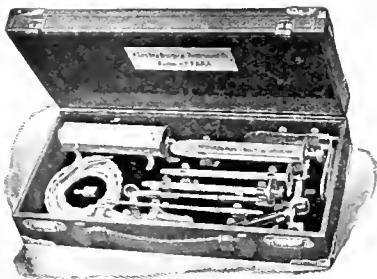
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BOOKS OF THE MONTH

(Continued from Page 26.)

THE MENTAL HYGIENE OF CHILDHOOD. By William A. White, superintendent, Saint Elizabeth's Hospital, Washington, D. C.*

The number of human derelicts, the proportion of men and women incompetent to earn a decent living, of moral weaklings, nervous and mental wrecks furnish a formidable argument against formerly accepted methods of education for here as elsewhere failure means lack of proper adjustment. So large a percentage of failures cannot be charged to inherent defects in the individuals themselves and the only solution of the problem lies in the development by means of "psycho-analysis" of a mental hygiene of childhood.

This the author has done. The child from the first is controlled by two fundamental instincts, the ego-instinct and the pleasure-pain instinct, always in constant play and also in constant conflict, the picture of development being a constant play of activities conditioned by these fundamental instincts but in which the sex instinct plays an increasing and predominant rôle. "All those warring tendencies battle for ascendancy and drive it along the path of development." The influences that come out of the past and the early environment are of tremendous importance; the first cannot be changed, but "the latter are capable of great modification and offer the field in which mental hygiene is operative."

The author's treatise emphasizes the importance of the developing sexuality of the child and the antagonism between parents and children, matters not usually taken into consideration. The concept that the child is asexual cannot be a basis for intelligent dealing with children. If its sexuality is ignored, these perfectly normal tendencies may go astray and if too many inhibitions are set up they may in later life result in the serious handicap of an infantile sexuality which has never had a chance to grow up. It should be recognized as a great force to be directed and used for constructive ends. Herein lie some of the blunders which account for many of the maladjustments of society.

"Now comes along science, which has illuminated so many things in this age of efficiency, and throws its light into the dark places of age-long customs." We may expect that many errors will be disclosed and the correction of the faulty practices which grew out of them will result in a better society.

YEAR'S WORK OF ROCKEFELLER FOUNDATION TOLD BY VINCENT

A review of the demonstrations and studies in public health made in 1918 by the Rockefeller Foundation, prepared by George E. Vincent, president of the Foundation, makes note of the fact that campaigns to encourage sanitation were carried on in twelve states of the Union and in twenty-one foreign states and countries.

The year's work included an extended campaign against tuberculosis in France, which centered in an endeavor to coordinate the existing agencies for combating the disease. France does not have organizations of the same national scope as the United States through which may be found channels for the education of the public in health standards. To overcome this absence of cooperative activities, the Rockefeller Foundation undertook and successfully demonstrated the advantage of team-play. The investigations directed against hookworm were continued.

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Promotes 44-Hour Week for Labor

At the closing session of the annual convention of the American Federation of Labor, June 23, the Federation pledged itself to obtain a general forty-four-hour week for workers of all crafts throughout the United States, and for employees in Government service.

Placement Bureau for Nurses

The American Red Cross provides an employment service for nurses returning from service with the military forces. Nurses are referred to institutions having vacancies, or service is given to institutions needing nurses. Headquarters for the service, it is announced, will be the Bureau of Information for Nurses, at the Atlantic Division of the Red Cross, New York City. The bureau is not an employment agency, but is organized to serve as a clearing house for nurses and institutions.

"AMERICAN CHILD" A NEW JOURNAL

As successor to the *Child Labor Bulletin*, the Child Labor Committee announces that it will publish *The American Child*. The first issue of the new magazine names the following representatives of child welfare bodies as editors: Owen R. Lovejoy, editor; Raymond G. Fuller, managing editor; E. N. Clopper and Ruth McIntire, associate editors; Wiley H. Swift and Josephine J. Eschenbrenner, contributing editors. The new magazine will deal with problems of child welfare, and will present the results of investigations and research by experts on questions of child welfare. The journal will be issued quarterly.

FIRST TASK OF RED CROSS LEAGUE

War on typhus with a view to preventing the spread of the dread malady from Poland, where 100,000 persons are down with the disease, to other countries of eastern and southeastern Europe by the League of Red Cross Societies of the World, is the first great health work on behalf of humanity which the organization, formed only a few weeks ago, has set out to perform. The Supreme Economic Council has appointed a committee of British, French, and Italian representatives to confer with representatives of the League of Red Cross Societies, regarding plans that will be submitted to the governments of the countries of eastern Europe.

COLUMBIA UNIVERSITY PUTS PHYSICAL EDUCATION ON SOUND BASIS

Corrective medical service and advice has been made available to the students of Columbia University, and a permanent, resident staff of physicians and nurses will be present to furnish the necessary medical attendance.

Columbia has recently adopted a program of physical education for the training, instruction, and medical supervision of the student body, with the purpose of developing and maintaining a high average of health.

The freshman student, when he enters college, will come under the supervision of the university medical staff. During the full period of his school course the medical supervisors will watch out for his physical well-being.

The new system has been developed under the direction of Dean Herbert E. Hawkes, Dr. W. H. Castline, and Dr. George L. Meylan. The university restaurant has been placed under the supervision of Prof. Charles T. MacFarlane, whose duty it will be to see that a properly balanced, wholesome diet is provided for students.



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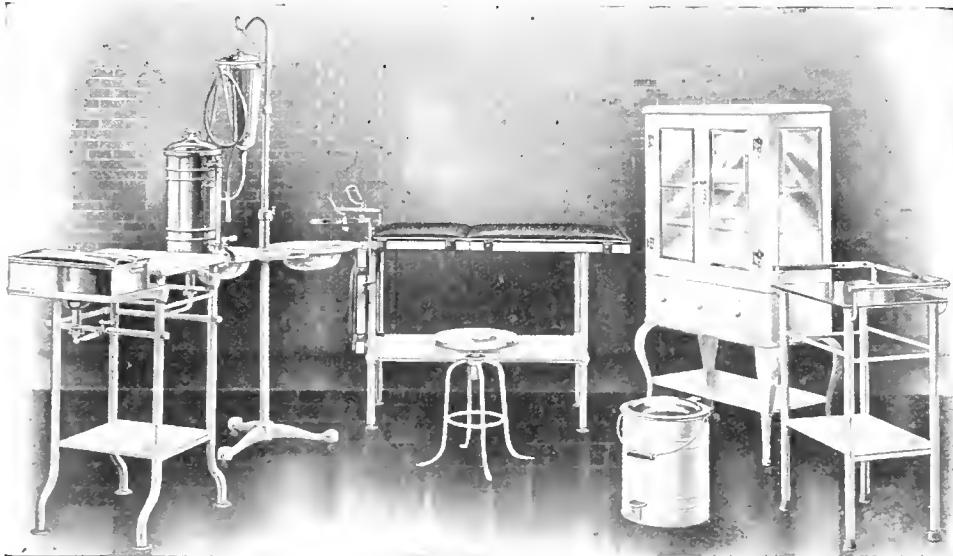
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NEWSPAPER INDORSES A. M. A. PETITION

The resolution approved by the five Councils of the American Medical Association calling upon Congress to appropriate not less than \$1,500,000 for a scientific campaign against the influenza germ, has prompted an editorial indorsement in the Columbus (O.) *Citizen*.

"The proposed appropriation," comments the *Citizen*, "as a strictly business proposition, is an extremely low rate of insurance for the prevention of future loss."

BUFFALO ISSUES INFLUENZA REPORT

The city of Buffalo, N. Y., is one of the first large cities in the United States to complete a municipal survey of the influenza epidemic, its incidence, severity, fatality, and after-results. Acting Health Commissioner Frank C. Gram, who related the results of the survey at the recent meeting of the American Medical Association, declares that popular fears of health impairment among persons who were victims of influenza are to be discounted. He reports that 33,880 persons were afflicted with the disease between October 1, 1918, and March 31, 1919. The deaths numbered 3,179. There were 748 cases with sequela arising from influenza. Commissioner Gram is making a follow-up analysis of the sickness and disease that has been attributed to earlier cases of influenza.

MEDICAL AID FOR SERVICE MEN

If any disabled service man who is considered by the Bureau of War Risk Insurance to be as much as 10 percent disabled, will get in touch with the Federal Board for Vocational Education, Washington, D. C., or with any one of its fourteen branch offices, the Federal Board will place them in educational institutions, when education is necessary and feasible, where suitable trades or occupations will be taught them according to their individual experience, capacities and preferences. A disabled man so incapacitated that he cannot take up his old occupation will be allowed to choose any occupation or trade which he thinks he would like to follow, subject, of course, to be assured that the man is fitted to pursue the occupation or trade elected. MODERN MEDICINE will furnish the addresses of district offices upon request.

to approval by the Federal Board, which is interested only

ASKS A. M. A. TO PUBLISH MEDICAL JOURNAL FOR LAYMEN

The American Medical Association should publish a medical and surgical journal for the lay reader, written in the language of the layman, urged Dr. Hugh T. Patrick, of Chicago, at the annual convention of the Association, who introduced the following resolution:

"That the trustees be requested to consider the feasibility of publishing a journal of surgery, and also a journal of health and medicine for lay readers, and that the house express itself as sympathetic to both ventures, if the trustees find them to be practicable."

That the Press Bureau of the Association may be discontinued and the work it has done be left to other organizations, is recommended in the report of the Council on Health and Public Instruction, presented by Dr. Victor C. Vaugh, of Michigan, chairman. The report states:

"It seems evident that the propaganda period in public health work is past. Many of our national health organizations, either special or general, as well as many of our state boards of health are now sending out press bulletins.

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Housing Survey in Coal Districts

As a result of the recent report submitted by Dr. Emery R. Hayhurst on the health of coal miners in Ohio, a special state commission has been created to study and report on housing conditions in the coal mining counties of Ohio, and to suggest remedial measures.

PUBLIC HEALTH AND RABIES

"From England on April 24th, there came to the American press sensational reports of an outbreak of rabies, so widespread that a condition akin to panic was created," says the *Scientific American*, in the June 14th issue, which contains an account of the situation in England and a discussion of the disease with relation to the public health problem. The article follows:

"Dealers in dog muzzles were swamped, and were accused of profiteering. Dogs were stoned in the streets, and owners put their special pets to death by painless processes.

"All this brings to mind very vividly England's remarkable record with reference to this disease, for it has been years since there has been a case of hydrophobia in the British Isles. This record suggests some important conclusions with regard to public health, as a world problem.

"England's remarkable showing is due to strict dog laws and their enforcement. From 1887 to 1896, there was an average of 238 cases of rabies a year in England. In 1901 a law was passed that all dogs imported into the country must be licensed. They were then quarantined under observation for six months by the government. All stray dogs were killed. As a result there has been no case of rabies in England since 1903 until the outbreak of April, 1919. It is rumored that the disease was introduced by soldiers' dogs brought across the Channel in airplanes to evade the quarantine.

"Fully to comprehend the importance of quarantine, as a protection to public health, one needs only to recall the cause of rabies and its means of transmission. A minute protozoan or one-celled animal, discovered by Negri in 1904, and named after him the Negri bodies, is the direct cause of the disease. The presence of these Negri bodies is detected in the brain or spinal cord of a suspected animal by mounting a portion of the brain or spinal cord on a microscopic slide and staining it with a particular fluid, called the Gierke's stain. This stain is taken up by the Negri bodies and differentiates them clearly from the other brain tissue. Their prevalence in the brain or spinal cord definitely determines the fact that the animal was a victim of rabies. This method of examining the brain or spinal cord of a dog, who has bitten some one, at once, instead of keeping the suspected animal under observation for a considerable time, enables the victim to begin treatment immediately, thus greatly increasing his chances of recovery.

"One of the results of the war has been that governments have taken up health activities on a scale never before attempted. The health of the community is no longer a question of the individual, but of the individual and his relation to his neighbor.

"The recent outbreak of hydrophobia in England after her long immunity, should give pause to New York City with a dog population of 500,000 and less than 100,000 of them licensed. In one year, 1915, moreover, there were over 3,500 persons in New York City bitten by dogs. No after-war problem is more important than this one of public health and the rigid enforcement of quarantine, that proved so effective in protecting England against the dread disease of rabies."

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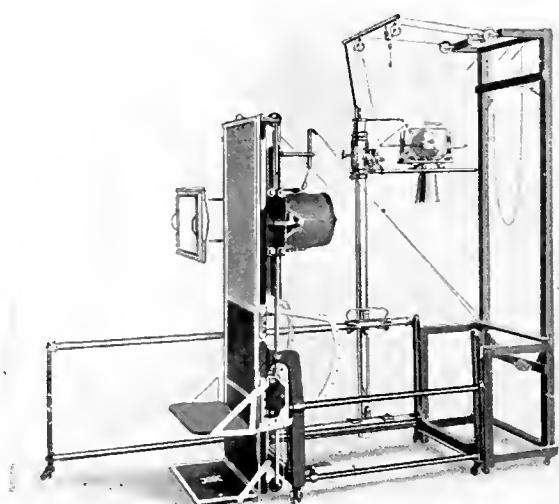
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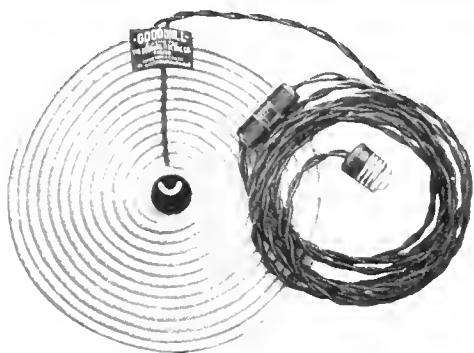
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War Surgery Monthly Suspends

Publication of the *Review of War Surgery and Medicine* by the office of the Surgeon General of the Army was suspended with the June issue.

Colonel Strong in Hygiene Bureau

Colonel Richard P. Strong, M.C., United States Army, of Cambridge, Mass., has been named as acting director of the Bureau of Hygiene and Public Health of the League of Red Cross Societies, at Washington, D. C.

FRENCH SOCIETY ELECTS AMERICAN PHYSICIANS TO HONORARY MEMBERSHIP

The Société médicale des Hopitaux de Paris recently elected the following American physicians as honorary members of the society: Dr. Beverly Robinson, of New York; Dr. William S. Thayer, of Baltimore; Dr. Alexander Lambert, of New York; Dr. Simon Flexner, of the Rockefeller Institute for Medical Research, New York; Professor Morton Prince, of Tufts Medical College, Boston; Dr. James T. Case, chief of the radiological service of the American army in France. At the same time five British physicians were elected to honorary membership, as follows: Sir Bertrand Dawson, Sir Almroth Wright, Sir William Leishman, Sir Thomas Barlow, and Sir Dyee Duckworth.

EUROPE NEEDS PREVENTIVE SCIENCE

The increase in the prevalence of the commoner kinds of afflictions in southern Europe during the war and the recurrence of epidemics in several countries, have made the need for preventive measures so pronounced, says Lieut.-Col. Homer Folks of the American Red Cross, that a modern public health program becomes vitally necessary in meeting the emergency.

Colonel Folks, who served as director of civilian relief in France, and as representative of the American Tuberculosis Commission, gave his impressions of the health situation abroad in an address recently before the annual conference of Health Officers of the State of New York.

"Although some of these countries," he said, "may be termed permanent headquarters for serious epidemics such as typhus and cholera, nevertheless the big job in public health in these countries, as with us at home, is dealing with diseases everywhere prevalent but to the extent and gravity of which we have become partly unconscious, such as tuberculosis and infantile diseases."

"The fact that disease persists in these countries does not mean that natural conditions are bad or that the people prefer filth and disease. It means to a great extent that they never had the facilities for getting and keeping clean. It follows from this that the cleaning out of these permanent centers of disease is not impossible, and that it is probably more practicable to clean out these centers of origin than to erect any sanitary cordon across Europe to catch and stop disease when it has gotten under way."

Bulletin No. 9 of the Iowa State Board of Health is devoted to discussion of "Better Housing in Iowa," and includes brief statements by Governor W. L. Harding and Guilford H. Sumner, executive and secretary, Iowa State Board of Health.

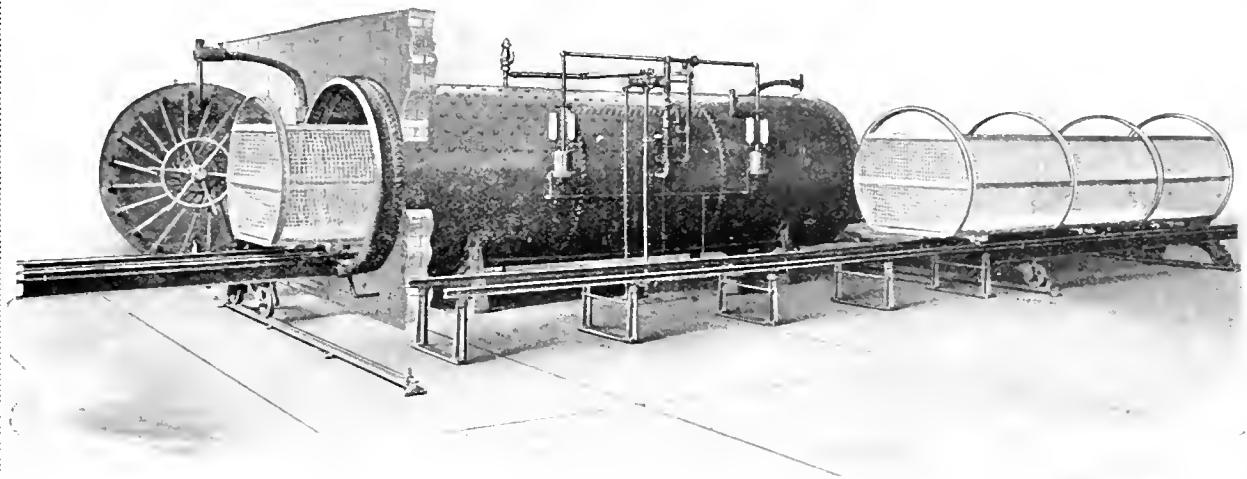
The *Kallikaks*, of Kansas, a study of the feeble-minded in Kansas comprises a special bulletin detailing the results of the findings of the Kansas Commission on the Provision for the Feeble-minded.

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The deep penetration and even distribution of a pre-determined degree of heat throughout the entire inner chamber, not easily obtained in less highly developed disinfectors, are features that distinguish the "AMERICAN" Kinyoun-Francis Disinfector and set it apart without an equal.

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Cost of Food Climbs 92 Per Cent

According to figures compiled by the United States Department of Labor, the cost of twenty-two articles of food in May, 1919, for the United States as a whole, was 17 per cent higher than in May, 1918, and 92 per cent higher than in May, 1913.

Form Health Conservation League

Several physicians, dentists, nurses, and druggists of Buffalo, N. Y., are organizing a Health Conservation League, to have for its object combined action by the four professions when occasion arises, to work for public health, and to influence public opinion in matters pertaining to public health. Dr. Albert I. Lytle, president of the Eighth District Medical Society, is one of the promoters of the League.

TAX ON NARCOTICS BURDENS PHYSICIANS

Governmen officials in the Department of Internal Revenue are held responsible for efforts to make the Harrison Drug Law a revenue-producing act, by the report of the Council on Health and Public Instruction of the American Medical Association. The law was not intended to be a revenue-producing measure, it is contended, and attempts to make it so, are declared detrimental to the members of the medical profession and to the public health.

The portion of the report dealing with the question reads as follows:

"During the past year the registration tax for physicians under the Harrison Law has been increased from \$1 to \$3. You are all familiar with the history of the passage of this law. Enacted by Congress to carry out our international obligations in compliance with the recommendations of the Shanghai Commission on the Control of the Opium Traffic, it was put in the form of a revenue measure simply to give Congress jurisdiction. *The Journal of the American Medical Association* cooperated heartily and cheerfully in securing the passage of this measure. The medical profession of the country as a class accepted the imposition of a nominal registration tax and the inconveniences connected with the operation of the law as necessary accompaniments of any practical plan for the control of legitimate traffic in habit-forming drugs. In the revenue bill for 1918, however, a new tax schedule was provided increasing the tax on physicians from \$1 to \$3. This is simply an effort on the part of the Department of Internal Revenue to make a revenue-producing measure out of what was originally and legitimately intended for a restrictive law for the public good. The law will not be any more effective in its operation under a \$3 tax than it was under a \$1 tax while it will impose an additional burden of about \$300,000 on physicians. The only justification of the law is the public good. The expenses of its administration should be paid out of the public funds and not out of a special tax levied on one particular class. While the increase in the amount of the tax might be justified as a war measure, now that the war is over there is no possible justification for it. The Council, therefore, recommends that the House of Delegates record its emphatic disapproval of this unjustifiable attempt to exploit physicians and that it demand the reduction of the registration fee for physicians to a nominal amount."

Even in the meanest sorts of labour, the whole soul of a man is composed into a kind of real harmony the instant he begins to work.—Carlyle.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians
& for Others Interested in Administrative, Industrial
& Social Health Problems

Editors ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., and JOHN A. LAPP, LL.D.

Managing Editor JOHN A. LAPP

Editorial and Business Offices, 58 EAST WASHINGTON STREET, Chicago

Volume I.

AUGUST, 1919

Number 4

NOTES AND COMMENT

NATIONAL AND STATE HEALTH POWERS

HERE is such confusion in the public mind about the duties of the state and national government in all matters of public concern that it is natural to find the same confusion in regard to health. Demands are made upon the Federal government without regard to certain fundamental divisions of power between the states and the Nation, and demands are likewise made upon the states for action which could only be effective legally and practically when done by the Federal government. Demands are also made upon the local governments without much regard to their legal power to act.

MODERN MEDICINE presents in this issue two papers on the relationship of the states and the Nation, one written by Dr. Frank A. Goodnow, president of the Johns Hopkins University, and the other by Dr. Allan J. McLaughlin, assistant Surgeon General of the United States Public Health Service. Both writers are authorities, one on the side of practical administration, and the other on the side of constitutional and administrative law.

These remarkable papers delimit the powers of the states and the Nation so clearly that they deserve careful study. Constructive criticism may be more intelligently directed if we know the fundamental division of powers which the courts will sustain under the conditions.

The Federal government is a government of delegated powers. Those powers are written out in the Constitution of the United States and if a power cannot be found there, either expressly given or implied, the Federal authorities cannot act. All powers not so delegated to the Nation

are left to the states, and are retained by the state or imposed by the state on local governments. So far as the Nation is concerned, then, we must look to the Constitution of the United States to see what powers have been expressly or impliedly granted to the Federal government.

Doctor Goodnow finds that no power over public health matters has been expressly granted except in the territories and in the District of Columbia. That is natural enough when it is remembered that public health matters were scarcely thought of in 1787 when the Constitution was framed. He finds that there are three sources of power: (1) the power to regulate commerce between the states; (2) the taxing power; and (3) the treaty power, from which the power to make health regulations may be implied.

Of these the commerce and taxing powers are the most important at present because they have been interpreted. We already have interstate quarantine and pure food laws under the commerce power; and child labor and narcotic laws, such as the Harrison Act, under the taxing power. International labor and health regulations are proposed under the Peace Treaty, which it is expected will become more than a mere recommendation to the states.

"Insanitary conditions," says Doctor Goodnow, "as a matter of fact, are no longer of merely local concern. Epidemics are not respecters of state or even national lines. A keener realization of this fact will unquestionably have the effect of causing a broader interpretation of existing powers and may well result in constitutional amendment where such broader interpretation is not possible."

The paper by Doctor McLaughlin presents the

same idea from the standpoint of administration. It recognizes conditions as they are, and points out how the national, state, and local governments may work together so as "to insure the covering of the entire field of public health between them. All gaps should be covered by one or the other jurisdiction and in twilight zones there should be the most complete understanding of a frank policy which would preclude overlapping, duplication, or conflict."

As a remedy for the present indefiniteness of authority, Doctor McLaughlin suggests a partnership between the Nation and states on the principles already established by national aid to roads, education, and the venereal disease campaign.

"Let us waste no time," he says, "in a futile effort to delimit accurately the police power and authority of each of these three jurisdictions, but let us leave such discussion to the academicians. As practical men let us disregard the theoretical boundaries of varying police jurisdictions and attack each health problem by joint concerted action according to a nation-wide program, remembering that the spread of disease recognizes no boundaries,—local, state, or Federal."

COMPENSATION FOR OCCUPATIONAL DISEASES

WHAT is an occupational disease? There is perhaps more futile discussion based upon the use of this term than on any question in the realm of accident or health insurance. The reason is found in the fact that there are few occupational diseases clearly distinguishable from other forms of disease.

Occupational diseases shade into other forms. Tuberculosis may be occupational or otherwise. Lead poisoning is almost always occupational, but not necessarily. Caisson disease and "phossy jaw" might be designated as strictly occupational with little likelihood of occurrence outside of industry. We might define an occupational disease as one which has its cause in an occupation, but that would not take care of the cases of disease which are not caused but are aggravated as a result of an occupation. If we accept the latter as a part of the definition, we have thereby claimed a large part of disease as occupational.

Nervous disorders of a telephone girl, or tuberculosis in a dusty trade should apparently be classed as occupational; but who knows whether the cause in the particular case may not be found on the outside, in the conditions of living or otherwise?

Workmen's compensation laws have brought the whole issue to a focus and commissions are

now struggling in almost hopeless confusion with the question of compensation for occupational diseases. Each attempt to clear up the confusion drives the commissions into more intricate questions, simply because there is no logical place to stop.

It is easy enough to grant compensation for lead poisoning. The responsibility of the industry is clear because men do not generally handle lead outside. But why compensate for lead poisoning and not for tuberculosis caused by a dusty trade? If compensation is given for tuberculosis, what allowance shall be made for other causative factors? Why compensate for loss of eyesight by accident and not when caused by slow process due to bad illumination? Must we always concern ourselves with the spectacular, and forget the disasters caused by slow processes?

The way in which the states are beginning to attack this problem is set forth in this issue by Mr. Carl Hookstadt, of the United States Bureau of Labor Statistics. He finds that six states are attempting to give compensation for injuries due to disease; of these, only the state of Wisconsin names specific diseases which are compensable. At present there are twenty diseases designated. The other states use broad terms to cover all injuries in employment, and the commissions and courts do the rest.

The experience thus far gives the basis for classification set forth by the author, as follows:

1. Diseases due to gradual absorption of poisons (lead poisoning).
2. Diseases in which the poison or germ enters the system through a break in the skin (anthrax).
3. Skin affections from acids or other irritants (eczema, dermatitis).
4. Diseases due to fumes or dusts entering the system through respiratory organs (tuberculosis, gas poisoning).
5. Diseases due to vibrations or constant use of particular members (neuritis, telegrapher's cramp, housemaid's knee).
6. Miscellaneous diseases (caisson disease, miner's nystagmus).

It will be seen from this classification that compensation is allowed in cases of quick development where the cause is clear; but it will be apparent that all of the diseases for which occupations are responsible, in whole or in part, are not definitely determinable and compensation under existing systems cannot be granted.

As a result of the necessary limitations, only a small fraction of disease is compensable. In England, in 1914, only 5.8 per cent of the total workmen's compensation resulted from occupational

diseases, while experience in this country runs far less. It will be apparent that as a means of meeting the problem of sickness, compensation for occupational disease is entirely inadequate. Disease causes several times as much loss as accidents, while compensation for occupational diseases under the present system amounts to only from 2 to 5 per cent of accident compensation.

THE REPORT OF THE ROCKEFELLER FOUNDATION

THE review for 1918 of the work of the Rockefeller Foundation by George E. Vincent, president of the Foundation, is all that could be desired in a public report. It is readable and inspiring; it covers the ground; it gives an outline of world-wide health problems and a vision of world-wide health organization. It is such a report as the average layman as well as the physician would read with sustained interest, which is more than can be said for very many of the public documents on health.

Probably a large part of the interest in this report comes from the fact that the president had interesting things to report,—plenty of them: the brief summary of the activities of the Foundation indicate this. To give the world-wide sweep of the health movement, we quote from the report seventeen activities in which the Foundation was the promoter or an important factor:

"(1) Extended a campaign against tuberculosis in France; (2) conducted demonstrations of malaria control in Arkansas and Mississippi; (3) helped to check a yellow fever epidemic in Guatemala; (4) made investigations and surveys, and inaugurated measures against the same disease in Ecuador; (5) continued or began hookworm control, and encouraged sanitation in twenty-one foreign states and countries and twelve states of the Union; (6) entered into comprehensive co-operation for improved public health organization in Brazil and Australia; (7) supported a school of hygiene and public health which was opened in October in connection with the Johns Hopkins University; (8) continued to contribute to various war-work agencies until the total given since 1914 reached nearly \$22,500,000; (9) pushed forward the fifteen buildings of a new medical center in Peking; (10) increased the funds of twenty-four missionary hospitals, medical and pre-medical schools in China; (11) cooperated with South America institutions in establishing certain departments of research and teaching; (12) maintained sixty-eight fellows and scholars from the United States, China, and Brazil who were studying at American medical schools; (13) supported

studies in mental hygiene; (14) continued appropriations for the after-care of infantile paralysis cases; (15) made additional gifts to the Rockefeller Institute for Medical Research; (16) lent expert members of the Foundation staff for various services; and (17) brought to an end studies in industrial relations."

As a program for the future, President Vincent cites the general aim of the Foundation as expressed in its charter: "The welfare of mankind throughout the world." "Each country," he says, "will be urged to contribute its best achievements to a common fund upon which all lands may draw."

INFANT MORTALITY

STATISTICS of the deaths of infants during the first few days after birth give a dependable index of the care provided for mothers and babies at birth and before. The total infant mortality in proportion to births as an index is dependent upon the accuracy of birth statistics and there are few places where such statistics are accurate.

The mortality statistics for 1916 show that 164,600 babies died within the first year after birth and of these 52,418 lived less than a week, and 75,583 less than a month. Nearly 46 per cent did not live to be thirty days old.

Informative comparisons are possible between cities and rural communities and these comparisons indicate the value of the statistics. We would expect, for example, the proportion of infants in the rural districts who died within thirty days to be greater than in the cities because of lack of medical facilities in many rural communities. The figures prove the conclusion.

Out of 73,551 deaths in rural districts of infants under one year 36,182, or almost 50 per

COMPARISON OF DEATHS AMONG INFANTS ONE MONTH OF AGE AND ONE YEAR OF AGE IN CITIES AND RURAL SECTIONS IN 1916

	Total deaths under 1 year of age		Total deaths under 1 month of age	
	Rural	City	Rural	City
Measles	816	1,211	67	30
Scarlet fever	56	70	5	6
Whooping cough	2,301	1,708	182	88
Diphtheria and croup	436	472	75	28
Influenza	1,032	574	165	74
Dysentery	573	233	39	17
Erysipelas	276	518	74	148
Tetanus	163	169	153	156
Tuberculosis of the lungs	420	502	35	22
Tuberculous meningitis	396	809	28	20
Other forms of tuberculosis	145	288	17	28
Syphilis	557	1,636	232	678
Meningitis	716	655	116	69
Convulsions	1,219	842	740	438
Organic diseases of heart	294	271	109	96
Acute bronchitis	1,275	2,194	291	482
Pneumonia	3,008	3,597	576	565
Bronchopneumonia	4,914	8,728	924	1,406
Diseases of the stomach	1,496	945	369	219
Diarrhea and enteritis	13,761	23,215	1,650	2,515
Malformations	4,886	5,752	3,912	4,422
Premature birth	15,589	17,534	15,000	16,661
Congenital debility	7,800	8,481	5,280	5,346
Injuries at birth	2,319	3,955	2,287	3,912
External causes	1,152	969	346	301
Diseases ill-defined or unknown	3,982	560	2,308	284
All other causes	4,065	5,221	1,202	1,390
All causes	73,551	91,109	36,182	39,401

cent, died within thirty days; while in the cities out of a total of 91,109 infant deaths occurring under one year, 39,401, or a little over 43 per cent, occurred within one month from birth. The average percentage for the preceding five years was 40 per cent for cities and 47.1 per cent for the rural districts. The causes of infant deaths also offer interesting features of comparison.

These figures significantly show where the emphasis should be placed in infant welfare work. Where the great losses occur, preventive work should be intensified.

THE TRAINING OF MEDICAL HOSPITAL SUPERINTENDENTS

WHAT motives or what processes of thought influence medical men to take administrative hospital positions? Do many of the younger men who enter medical college think, when embarking on their scientific course, that it is to lead them into a life work of hospital management? Yet an increasingly larger number of medical men each year go or drift into administrative work. Is their action the result of choice or accident?

The industrial and business worlds have by experience developed definite composite character standards for successful executives. The basic requirements of forcefulness, clearness of mind, quick decision, and firmness apply as much to hospital superintendents as to managers of industrial plants or of business organizations. Fundamentally the problem is the same: to produce the maximum amount of service at the minimum amount of cost.

The reservoir of men from which the business world has to draw is very large. The hospitals are restricted to a comparatively small group, first, because they cannot compete with business concerns in payment of compensation; second, because they require of their managers a considerable amount of technical knowledge which is very seldom possessed by persons without a medical education. Although many lay persons have proved themselves to be excellent hospital superintendents, the modern tendency is unmistakably toward limiting the field to graduates of medical schools. Their "right to monopolize" hospital management is on par with the "right" of engineers and chemists to manage industrial plants. But right involves responsibility, and this leads to a consideration of the problem of training medical men for administrative duties.

Prior to our entrance into the Great War some of our medical schools adopted the five-year course. The application of the new curriculum was postponed on account of the war exigencies.

The post-bellum period of reconstruction will give added momentum to the movement for a prolonged medical course. The majority of our first-class schools will add the fifth year and will devote it chiefly to bedside instruction in hospitals. Students desiring to devote themselves to a career of laboratory research will probably be allowed to utilize the additional year in the laboratory instead of in the hospital wards. Likewise, those wishing to select the field of public health for their life's work ought to be given the opportunity to specialize in studies that will fit them for their selected tasks. Is it not feasible to establish a special course for those who would wish to fit themselves for the duties of hospital managers? The very existence of such courses would act as an axis of crystallization for those students who feel more or less indistinctly a preference for work in hospitals over the practice of medicine.

The courses offered would embrace such subjects as business management, efficiency tests, the science of accounting and finance, the understanding of values in the many kinds of goods in which the hospital is interested, and then, of course, instruction in the problems of hospital management. The last mentioned will be conducted by successful hospital administrators, with whom arrangements could be made to teach the students at the hospital and put them to practical tasks. One year's study will not, of course, develop young men into mature executives but it will serve two purposes: (1) it will eliminate those who are unfit for executive positions and save them future failure; and (2) it will give an opportunity to those with executive abilities to train their native faculties for the successful discharge of their duties in the future. Many hospitals will be glad to avail themselves of the services of these partially trained graduates who would be more valuable to them from the very outset than persons who had had no administrative training whatever and are unfamiliar with hospital problems. At the same time the young graduates will be enabled from the beginning to earn a definite salary and that in a position which will lead to further advances along those lines in which they desire to specialize.

A general discussion of this subject is desirable. It may be that the suggestion of linking hospital management courses with medical college curriculums is not practical; it might perhaps be better to establish training schools in connection with some of the hospitals, just as we have training schools for nurses. The subject, however, is a vital one and deserves careful thought and discussion.

E. H. LEWINSKI-CORWIN, M.D.

BETTER HEALTH THROUGH BETTER HOSPITALS

BY THE REV. CHARLES B. MOULINIER, S.J., PRESIDENT, CATHOLIC HOSPITAL ASSOCIATION, MILWAUKEE WIS.*

FOR the past year and a half Dr. John G. Bowman, director of the American College of Surgeons, and the author, as president of the Catholic Hospital Association, have been traveling throughout this country and Canada, trying to make better hospitals, trying to tell the medical profession, the hospital workers, and the people that hospitals throughout this continent should be better, the whole objective in all our work having been just one thing—the benefit of the patient, better care of the patient. No credit for this concept of the movement is due to any one person concerned because a moment's thought makes evident that the medical profession, the nursing profession, and the whole personnel of the hospitals are for the patient first, last, and all the time. People do not fall ill and become patients for the benefit of the medical profession, or to accommodate the hospital people, or the nurses. It is just the other way around; all these agencies are arranged to meet the needs of those who are sick and their organizations are so planned as to meet them in the best possible way.

Service Should Be Uniform

That these several agencies should get together on some of the fundamental principles of such medical organization, plan their efforts to meet every phase of the situation, and that without duplication of effort or overemphasis of one phase to the neglect of the other, is only the part of common sense.

What does this getting together on fundamentals mean? Doctor Bowman has told you that it means organization, records, adequate laboratory service.

It has been considered in terms of physical equipment—definite types of buildings, certain kinds of food, special installations of laundries, and all the other details incident to efficient hos-

100 PER CENT MEDICAL SERVICE

Unity in the standards of the three basic units of hospital service—which are the medical profession, the nursing profession, and the hospital profession—is the first principle of modern medical practice. It is not only the hospitals that must be standardized but the medical profession as well.

The hospitals are going to see to it that every patient who enters will get as nearly 100 per cent of service as can be brought about. From every standpoint—service of the laboratory, keeping of records, relations with patients—hospitals and physicians will be held to this high standard.

and it is the physician who must get to the patient the medical knowledge of the day. The hospital, the building, the food, the heat, the beds, the equipment, the technicians are all but means to the end of getting the carefully gathered scientific knowledge and skill of the medical profession into the system of the patient. Until unity of purpose and action in these matters is achieved on the part of the medical profession so that they will make records, keep records, demand and co-operate in the institution and maintenance of the most efficient care and restoration of the sick, of what avail are the deliberations of earnest bodies of hospital workers, regulation of hospital management, or even state and Federal legislative acts?

Team Work Is Necessary

The physician in the past has been an individualist. As the first contact of the patient is with the physician, it has been natural for him to consider the patient his own property, forgetting that dealing with the sick cannot remain a personal relation, but must include other remedial agencies. Unfortunately for cooperative effort, one still encounters on all sides the individualistic attitude of physicians toward patients, but the time is at hand when the patient must be regarded as the charge of the whole profession, the ward of the hospital, the joint responsibility of all, and not merely one man's patient.

The intensely individual physician is usually the one who talks about "standardizing the hospital" and in this connection it is pertinent to say

*Address delivered before the Fifth Annual Meeting of the Ohio Hospital Association, Cleveland, Ohio, May, 1919

that if the medical profession seriously desires to help in the standardization of hospitals it must first standardize itself. This is an inescapable conclusion because of the following considerations:

Medical knowledge and medical science to-day are so varied, so difficult to attain with anything like a full and easy grasp, and so complex to administer with sureness and efficiency; their application calls for so much in the way of equipment and laboratory service as means of diagnosis that, no matter how tremendous his genius, no matter how many years he may have studied medicine, when serious and baffling complications arise it is so trying for one man alone to administer modern medicine in any full measure to the patient that it has become a procedure of group practice, of institutional administration of medicine to the patient and, therefore, the medical man to-day looks to the hospital, is dependent upon the hospital for his means of exercising the knowledge he has of medicine, and for dealing with those patients he used to handle as a personal problem.

Team Work Aids Standardization

It follows that the hospitals have a task the like of which has never yet confronted them. They have been burdened with debts. They have been distressed with the accumulations of troubles and functions they must perform; but it is unlikely that they have faced the thought that they were going to be charged with the task of organizing the medical profession. Yet that is just what they have to do. Discussion of these matters with medical men alone always gives the impression that they think it is their Herculean task to standardize the hospitals. They say: "If that hospital would only do thus and so, things would be all right." On the other hand, when the hospital is questioned: "Do you do this? Do you do that? Do you do the other thing?" the reply is: "Yes. We are trying hard, but we can't get the doctors to do, this, that, and the other thing." There is this constant shifting of responsibility.

The ultimate responsibility will fall on the hospital; hence the hospital must take up the burden of standardization, of causing the medical men to think alike on fundamental principles as regards what is the accepted procedure in modern, up-to-date hospitals.

There must be organization. There must be records. There must be laboratory service that gets to the patient. Who is to organize? Who is to give the records? Who is to apply the laboratory service to the patients? The doctor, of course. Can the Sisters, the nurses, the board of trustees organize and hold meetings for the dis-

cussion of what is going on in the hospital down to the details of every case? Certainly not! Only the medical men who are giving the service can do that. The hospital simply helps in this service. The physicians are the ones who have the prerogative; therefore it is for them to organize. They must scrutinize, they must judge their own work day by day, week by week, month by month. If they are not doing this, they are not doing their duty and clearly the patient is not receiving that to which he is entitled, and the hospitals must see to it that this duty is discharged.

Adequate Records Are Imperative

There can be no check on the service rendered unless adequate records are kept. Who is to keep the records? The hospital, of course, will keep them. Furnish the means? Certainly. A stenographer? Yes. A dictaphone? Yes; they will furnish anything that is necessary to do the transcribing. But out of whose head must the record come? Who must finally take the history and be responsible for it? The doctor. Why not the intern? Why, he is but a youngling yet; he is only learning how to take histories. It requires much knowledge and experience to sift out the truth from the history as given by the patient and if the history elicited by the intern is not gone over, corrected, perhaps filled in, and finally corrected by the physician in charge, it is not worth the snap of one's finger scientifically nor to the patient.

Can a young woman, can a Sister take a history? Perhaps if she is intelligent and careful she will learn just as well as an intern; but it will be worth absolutely nothing scientifically or legally unless the doctor goes over and approves it. Therefore the doctor must be responsible for the history.

He has to be responsible for the physical examination. But what about the function of the intern? The intern should make the physical examination. Nurses can be trained to do it, but the scientific finish and responsibility do not accrue until it has the confirmation of the doctor.

The laboratory tests follow the physical examination. They come from the technicians, from the laboratories, from the pathologists; but if they do not get the visé of the clinical men attending the case; if that laboratory work is not balanced up with the clinical findings, with the observation of the case and the history that has preceded, the laboratory is not worth anything finally to the patient nor to the growth of medicine.

Again, who is to make a diagnosis preceding operation or treatment? The doctor; and he

makes the diagnosis only on the basis of all that has preceded with the help of the hospital and its technical force. In case of any reasonable doubt, diagnosis before any operation or treatment should not be made until the knowledge of the staff of that hospital has been enlisted. Call in one doctor; another; a third; yes, even a twentieth doctor if that should be necessary. Why this extreme statement? Why has the individual doctor to-day no right professionally, institutionally, scientifically, nor ethically to pronounce a doubtful or a misgiving diagnosis preceding an operation, or even preceding treatment, without getting all the knowledge that might help him to be sure, and safe, and sound in that diagnosis? The answer is just this: Every human being to-day has a right, as against the whole medical profession in any locality, to the best of knowledge and skill of the entire medical profession.

This is rather a strong statement to make and may be proclaimed as somewhat radical. The people have become accustomed to trust themselves absolutely to their individual doctors. Because of inheritance of thought and action in this regard, and because of the attitude of the doctors themselves, the patient has come to think he belongs, body and soul, to the particular physician whom he happens to consult for any condition of ill health—a wrong and false attitude which must be changed. Great, basic changes have come into the practice of medicine within the last ten or twenty years. Medical practice has become a real science. It knows, or it does not know. There is no more mystery about it. Guess work no longer poses as knowledge. There is still guess work; there is still experiment; but the honest practitioner admits things as known, or not known. Such a practitioner knows whether a real, true, sure diagnosis is given or if it is tentative. When a decision cannot be reached, reputable doctors no longer claim they know, nor do they proceed on an uncertainty when honest

investigation or further consultation will clear up the diagnosis. To lie or pretend in such a case is unscientific and unethical. Present day means of disseminating medical knowledge by magazines, pamphlets, wire, should make to function through the local medical profession 100 per cent of all the knowledge of the medical profession everywhere and, in the presence of a complex condition, the patient is entitled to 100 per cent of that knowledge wherever he may be, local hospitals and doctors notwithstanding. This being true, no man has a professional right, and certainly no scientific nor ethical right, to deal alone with a patient in a hospital when there is any possibility of a doubt as to the sureness and safety of his diagnosis.

This is a new concept of medicine which enjoins upon the hospital the same obligation to every patient that enters into it as that assumed by the medical profession; it holds that the trustees, the owners, the administrators of a hospital owe to every patient that enters the hospital, by the mere fact that the patient is a

human being with a God-given right to the life and the well-being of life, as nearly 100 per cent of medical knowledge and skill as they can in reason be expected to render.

On the premises herein established the only conclusion hospital people can reach is this: the hospital is going to assume that responsibility in deepest earnestness; is going to see to it that no patient enters who does not get as nearly 100 per cent of service as can be brought about, and as fast as it can be accomplished; that the equipment of the laboratory, the service from every part of the hospital, the records, and, finally, the medical men who serve in the hospital, will be held to this high standard. The medical men will be told: "Gentlemen, we have a duty to every patient who comes in here and, if you are going to deal with patients in this hospital, you must with us assume the duty and cooperate with us in administering real, modern, complete, institu-

"MEDICAL knowledge and medical science to-day are so varied, so difficult to attain with anything like a full and easy grasp, and so complex to administer with sureness and efficiency; their application calls for so much in the way of equipment and laboratory service as means of diagnosis that, no matter how tremendous his genius, no matter how many years he may have studied medicine, when serious and baffling complications arise it is so trying for one man alone to administer modern medicine in any full measure to the patient that it has become a procedure of group practice, of institutional administration of medicine to the patient and, therefore, the medical man to-day looks to the hospital, is dependent on the hospital for his means of exercising the knowledge he has of medicine, and for dealing with those patients he used to handle as a personal problem."

tional, medical service to every patient admitted."

It matters little through which channel of the hospital organization this dictum is issued, but it must be done if hospitals accept this plain, simple basis of thought, namely, that the medical profession, the whole nursing profession, and the hospital profession, as three units, three elements, are bound to the patient to give him what he has a God-given right to. This is not so hard to accomplish. It just calls for a little common sense, cooperative thinking, and coordinated action. These things that Dr. John G. Bowman is telling throughout this continent, that the American College of Surgeons in its splendid idealism and generous devotion of money and energy is doing throughout the country, are not questions of great expenditures of money. They are calling upon the medical profession, upon the nursing profession, and upon all those who work in hospitals just to do a plain, simple, ethical duty—organize; see what the work is; criticise it frankly if it needs it; improve it month by month. Give a written contract of agreement to every patient when he leaves the hospital: "This is what we have done for you from the very moment you came into our hands. We have served you with all that modern, up-to-date medicine enables us to do, and we have cured you." Or, if the hospital group is unsuccessful and he goes to the autopsy room, it could be said to the nearest of kin: "We have done the best we could. We are sorry; but the ones surviving will benefit by the knowledge gained from the autopsy."

Prophecy of a New Growth

This thing is so plain, so simple, so unquestionable in its basic nature that there should be no difficulty whatever about it. Time will be needed and thought required; but what at first appeared to be insurmountable obstacles will almost disappear. Hospitals will have their monthly meetings; they will have their complete scientific records, their laboratory service, and all concerned will be satisfied through and through, in mind, in heart, and in conscience. All will be able to kneel down at night and say their prayers and thank God that he enabled them to live through another day in service to their fellow men. The hospitals will have another great satisfaction. They will have reformed, made of different mold, made higher, better, and nobler one of the grandest professions known. The hospitals are not to forget that they have this mission. The medical man is a splendid type, but he is intensely human. He has ambition, he has pride; he has vanity, and he is jealous, just as all are to some degree, but that will disappear

with cooperative work and proper support. He may know medicine, but sometimes he is a mere child in other matters. Whatever his personal qualities, the hospital has got to get hold of him and fit him into the organization. They may have to say to him: "You are a very fine doctor, but you are not the whole thing. We are glad to have you in this hospital, but you must not try to dominate it to the exclusion of others."

Results Gained by Reorganization

In the matter of organization, as soon as possible, the hospitals must get away from that "chief-of-staff" idea. The president of the staff should be elected from year to year. Let the doctors elect and the hospital board appoint. They will then teach the doctors something they really know but do not let themselves seriously think about, namely, that in medical science and in medical service there is no hierarchy, no aristocracy in the old sense of the word. There is no monopoly of medical knowledge and medical skill by any process except that gained by hard study, close application, and by absolutely honest and sincere administration of that knowledge. No scientist can claim to be what he is not, for science must engender the love of truth, and medical science must develop an altruism of service that is above all other service except religious service.

This standardization will make the doctors rise in stature of character. If they are petty, if they are jealous, if they won't play the game together, they must be gently told: "We have a team that can get along without you, no matter who you are or what you are. We know perfectly what the modern game of medicine is. It is just as simple as one-two-three, and if you are not going to play the game above board and with absolute frankness and generosity of character, you can't be on our team; go and join some other group."

That is all; and just as soon as the hospitals of this continent, without exception, will take that stand, the medical profession will get down on its knees and thank them for what the enforcement of these high requirements will do for them and for the science of medicine. The whole public will do the same.

Chicago's Typhoid Death Rate Lowest

Dr. John Dill Robertson, health commissioner of Chicago, claims for that city the lowest death rate from typhoid fever in the first six months of 1919, of any city in the world. Only six deaths were reported, or only one for every 200,000 persons. The purifying of the water supply by the chlorinating process and pasteurization of milk, are the two factors to which he attributes the effective control of typhoid.

THE CARE OF THE WOUNDED AMERICAN SOLDIER

A REVIEW OF THE METHODS AND POLICIES ADOPTED BY THE UNITED STATES GOVERNMENT FOR THE PHYSICAL AND OCCUPATIONAL REHABILITATION OF THE WAR'S DISABLED

AMERICAN casualties are small in number when compared to those of England, France, and Russia; but they are large in the hearts of those who held in warm affection the boys of the United States Army. It was not the number of wounded that led Uncle Sam to make such complete plans for their restoration, but it was because they were our wounded. Disabled for their country, it was their country's privilege to restore them if possible. Plans to make and keep the soldier physically fit included preventive as well as restorative measures. The sanitation of the camp, the proper handling of infectious diseases and the prevention of the spread of communicable diseases were as much stressed as the nursing and professional care of the sick.

Complete Restoration Sought

The Surgeon General of the Army announced his purpose to be the complete restoration, as far as it was possible, of every wounded or sick man in the army whose wounds or sickness were the result of his service. The medical head of the army recommended that no soldier disabled in line of duty be discharged from the army until cured, or as nearly so as the nature of his disability would admit, which was accepted as the War Department's policy. No war-imposed obligation has received greater consideration than this of caring for the health of the soldiers, and so thoroughly has it been fulfilled that many men have left the army sounder in body than before.

This physical reconstruction of men disabled in the service necessitated an organization under the direction of the War Department, which projected itself into the camps and cantonments at home and reached overseas to the very battle front. Within twelve months the number of medical men holding commissions in the army increased from 700 to 20,000.

Before General Pershing and his first fifty

The policy of the Federal Government in the care of disabled soldiers embodies a plan of saving human lives which many persons consider the most magnificent achievement of the war.

While the war continued the Medical Corps of the army sent back to duty 85 per cent of the wounded and sick in the hospitals at the front, thereby reversing the usual ratio of sickness and battle casualties. Since the war ended the Government, through such agencies as the Public Health Service and the Federal Board for Vocational Education, is doing as great a work for the disabled men in hospitals on American soil.

thousand reached France there had been organized, at the request of France and Great Britain, six base hospitals, which were at work under the direction of the American Red Cross. These hospitals eventually became a part of the regular military organization. Trained men on the battle field saved many lives and prevented many permanent disabilities by the prompt aid given the wounded, and major op-

erations were often performed by skilled surgeons whose hands kept steady under the sound of the enemy guns. It is significant that the first members of the American Expeditionary Forces to lose their lives or suffer wounds in the great war at the hands of the enemy, were not from among those who fought at the front, but were members of the medical corps, engaged in deeds of mercy at a group of base hospitals attacked by a hostile aeroplane.

Treatment of Special Diseases

Both overseas and at home the hospital facilities were very complete. A base hospital, usually with a capacity of about 1,200, was built at each of the thirty-two mobilization camps; forty-three general hospitals were established throughout the country for the reception of the wounded from overseas and for patients transferred from the various camps who required prolonged treatment. In order more efficiently to treat men with specific diseases or injuries, the War Department designated certain hospitals to be used exclusively for the care of men with these particular diseases. General Hospital No. 4, Fort Porter, N. Y., General Hospital No. 25, Fort Benjamin Harrison, Ind., and General Hospital No. 43, Hampton, Va., were used for the insane; Fort Bayard, N. M., Oteen, N. C., Otisville, N. Y., General Hospital No. 21, Denver, Colo., General Hospital No. 20,

*Specially written for MODERN MEDICINE and submitted to the Surgeon General of the Army and the Federal Board for Vocational Education before publication.

Whipple Barracks, Ariz., and General Hospital No. 42, Spartanburg, S. C., are among those where the tuberculosis are sent; Walter Reed, Washington, D. C., is for orthopedic cases, as well as general cases; "Evergreen" at Baltimore is for the blind, and the deaf are sent to Cape May, N. J.

Upon arriving in the United States, the



View of the administration building and some wards at Walter Reed General Hospital, Takoma Park, D. C.

wounded are taken first to the debarkation hospital at the ports of debarkation at Hoboken, N. J., or at Newport News. After a brief stay, during which time they are examined and their disabilities classified, they are transferred to the base hospital or convalescent center nearest their home, except in the case of those requiring special treatment, in which event they are assigned to the special hospital designated for the treatment of that particular disease.

Medical Care for Discharged Men

In spite of the excellent care and expert treatment given the soldier by the army medical department, some men are necessarily discharged not wholly restored to health and vigor. Recurrences of the old disability occur and Uncle Sam continues to recognize the obligation of healing these boys "as far as possible." The War Risk Insurance Act charges the Bureau of War Risk Insurance with the duty of furnishing "such reasonable government medical, surgical, and hospital services, and with such supplies including artificial limbs, trusses, and similar appliances, as the director may determine to be useful and reasonably necessary."

Even after beginning their vocational training some men discover their inability to carry on, and the doctor's care and advice are necessary. If these men have been discharged and are enrolled as students under the charge of the Federal Board for Vocational Education, medical treat-

ment is given them by the Government free of any expense.

This outlines the method which the Government follows in caring for sick and wounded service men. But this outline is only the bare framework upon which the comprehensive plan for the complete restoration of the soldier was constructed. For modern medical treatment goes farther than physical cure alone. Functional restoration is the great aim of the surgeon today. In order to achieve this more than ordinary medical and surgical measures are employed. Physiotherapy embracing electro-, hydro- and mechano-therapy, is being most successfully employed in the physical reconstruction of these wounded men. Stiffened joints are relaxed, weakened muscles are strengthened, and stumps are strengthened by massage and the beneficial effects of heat and light. Baths of every description are used in the treatment of septic wounds, and electrical devices aid in the search for sick or injured nerves. Perhaps the most wonderful of all is the plastic surgery by means of which faces marred beyond recognition of even those most loving, are remade into the familiar likeness.

Government Supplies Artificial Limbs

The number of amputation cases has been far less than might have been expected. But for the hundreds of men who need an artificial leg and the thousands who must have some substitute for the lost arm, artificial appliances become of great importance. These are not only furnished by the Government through the Bureau of War Risk Insurance but necessary repairs are made whenever required.

The Government does not consider that physical treatment alone fully meets its obligations to disabled men. The mental attitude of a sick man is such a very important factor in his recovery that special provision was made for curative work in the program of the soldier's restoration. Medical treatment was made compulsory for the wounded or sick soldier, but the choice of curative work was left to his own discretion. Work always brings more beneficial results, whether these results are to be curative or remunerative, when undertaken in a spirit of willingness, rather than by compulsion. The soldiers have chosen wisely, and occupational therapy has become firmly established as a very essential part of every army reconstruction hospital. Both psychologically and mechanically these work shops have proved valuable in the functional restoration of the wounded.

Before the armistice was signed in November last, the principal thought of the army or navy

surgeon in treating the wounded, was the possibility of his return to duty. If the soldier was too seriously wounded to be send back to the front he was held for some limited service. Eighty-five and five-tenths per cent of the wounded were able to be used in some way. But now that the time for peace is here, and the pressing need for men no longer exists, the government continues to give to our wounded and sick boys the same skilled medical care.

On March 3, 1919, Congress passed a bill authorizing the Secretary of the Treasury to provide hospital and sanatorium treatment for discharged sick and disabled soldiers, sailors, and marines, who are beneficiaries of the Bureau of War Risk Insurance. These hospitals are to be under the direction of the Public Health Service. Many of the army hospitals no longer required for men in active service, are being transferred to the Bureau of the Public Health Service.

No necessary step in the way back to health and vigor was overlooked in planning for the thorough restoration of our boys. From the moment the stretcher bearers lifted him from the field until he gains sufficient strength to firmly establish himself as a contributing unit in the economic life of the community, Uncle Sam guards the health of his soldiers, sailors, and marines. The ambulance companies, the field hospitals, the base hospitals, the hospital trains and ships were but evidences that the government's watchfulness of the sick soldier never flagged for a moment.

As zealously as America went to work to win the war, so now every energy is being bent towards bringing back to healthful usefulness those who made possible the great victory.

A brief reference was made earlier in this article to the work of the Federal Board for Vocational Education. This Board is charged with the duty of providing vocational training for all men disabled while in the military or naval forces of the United States who suffer a handicap

which will prevent them carrying on their former occupation, or some other one, without suitable training. The Board is also charged with the duty of assisting disabled men to find suitable positions after their medical care, or vocational training, or both, are complete. Every disabled man is interviewed and given the best of advice as to some new occupation if he is unable to return to his former occupation because of his service disability. During his course of training, a disabled man receives an allowance for the maintenance of himself and his dependents. The

Government, through the Federal Board, also pays all the costs of his tuition, books, materials, and incidental school expenses.

These things are provided by the Government, not as a reward, but as a simple measure of justice to those who have suffered a disability in the Nation's service. It is alike a measure of justice to the disabled man and of security and economic value to the community, that the Nation shall so manage its work for the disabled from the war that they shall come out of it morally and socially improved,—able once more to take their places in the community as useful and, therefore, happy citizens.

The new health administration law of Ohio provides for all-time health officers and nurses in districts corresponding to counties and large cities, and further provides that all medical work for the indigent shall be done by the health departments.

REEDUCATION

SURELY 'tis something Godlike to receive
These souls fresh born and fresh baptized with fire
And start them safely on a surer path,
Bewildered, some, the world has been too wild
For quick adjustment—and for these the hand
Stretched out in loving kindness is God's boon.
Some have been stunted in the far-off past—
Far-off, though still a year away, maybe,
Since time may not be measured by its hours,
But by its high emotions. These have served
At tasks unlored, and now a hope has come—
A hope to dazzling to be quite believed,
Hope of a dream, a boyish dream, come true.
The artist soul, chained to a desk; the youth
Who loves all outdoor things, the smell of soil,
The growing things he fain would help to grow;
The student torn from books ere he was grown,
To earn the needed wage—to these a hope
Dawns like a light in places underground.
And with the hope's fruition comes the thoughts
"My country loves me!" Like a gracious warmth
It fills the lonely soul, and nevermore
Will fade the glow.
Thus, surely, will arise
A newer patriotism, of the heart, not head—
A deeper, surer devotion to the land
That by adoption or by birth is his.
Justice and pity mingle, as in Him,
And in the lad a fine sweet thing is born,
A finer love for country and for God.
Yes, it is something Godlike to do this.

—ALMON HENSLEY.—THE VOCATIONAL SUMMARY.

HOW THE CURATIVE AND VOCATIONAL TRAINING OF THE WOUNDED AMERICAN SOLDIER ARE COMBINED IN THE WORK OF REHABILITATION



Fig. 1. This patient with his arm strapped down is undergoing no more terrible operation than having measured the extension-flexion of his joints and fingers in the psychological laboratory. Curative and educational work will be assigned to him on this scientific basis.

Fig. 3 (below). Light work in plastic modeling compositions and clay has some times decorative and artistic value as well as therapeutic. Perhaps an injured hand will lead some man to the discovery of an unsuspected talent; neither of these two men had ever handled any of the instruments before.

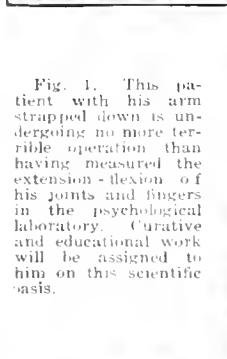


Fig. 2. Carving wooden handles is excellent light curative work for the left arm and hand, but that is not its only claim to interest, as the absorbed expression of the soldier seems to indicate. The results are mounted to the left.



Fig. 6 (below). Tools for the disabled. Note the use of dental modeling wax, which is easily molded and attached to the hand with the application of warm water to the wax, and the special appliances and tools for arm amputation cases.



Fig. 4. This model aeroplane is the completed work of some light therapeutic occupation undertaken in the well-equipped machine shop, where disabled hands achieve wonderful results—the most wonderful in some cases being their own cure. For those not mechanically inclined, ring-weaving or fine jewelry work may furnish the same means of cure and satisfy the same creative instinct.

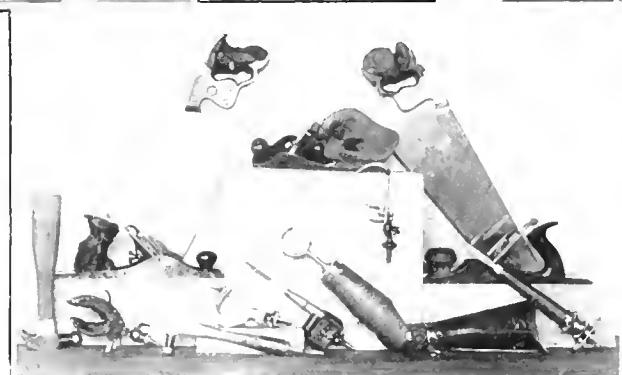


Fig. 5. Just beginning a project in the workshop, which may result in a small but perfect aeroplane like the other man has made or in any of the other contrivances which occupy minds and loosen stiffened fingers. The soldiers who return from here take home trophies of which they are almost as proud as of the German helmets they brought back from "over there."

HOW UNCLE SAM HAS PROVIDED FOR BLIND SOLDIERS—THEY LEARN TO READ AND WRITE, AND TO WORK AND PLAY AGAIN



Fig. 1. Evergreen General Hospital, Baltimore, Md., where blinded and disabled American soldiers are restored to health and retrained for vocations in which they may become self supporting. They are taught to read and to write and they learn new ways to work and new ways to play. Every man learns to use the typewriter and to write Braille.

Fig. 3. On the extensive lawns of this recreation field all kinds of outdoor sports may be enjoyed by the blind. The men are taught that systematic exercise is just as essential for them as for those who see.



Fig. 2. Headquarters of the Red Cross activities for the blind. The Federal Board for Vocational Education, working in cooperation with the Red Cross Institute for the Blind, refits the handicapped soldier physically and mentally for the years to come. A corps of industrial teachers and vocational educators instruct the soldiers in various occupations.



Fig. 4. Library and reading room. Through the agency of Braille the blind have recourse to many books which are supplied in the Red Cross Institute Building. The "Cheer-up" volumes in which are found extracts from current literature are much appreciated.



Fig. 5. One of the airy restful wards where the men can feel the sunshine. Blind men are keenly susceptible to the charm of their surroundings, which is as quickly perceptible to their quickened senses as to the eyes of other men, a fact never lost sight of at Evergreen.



Fig. 6. Bowling is one of the favorite sports of the blind patients at Evergreen. The excellent therapeutic qualities of bowling in the rebuilding of shattered bodies has placed this sport among the first on the list of those found useful in the rehabilitation of war victims. The blind soldier improves his sense of direction in the approach. He learns better to judge the distance at which sound is heard by noting the interval between the instant his hand releases the bowl and the instant it strikes the pins. Sometimes the bowl goes off into the gutter, but with practice these blind bowlers become experts.

Fig. 7. The entrance hall of the Evergreen Hospital serves also as a lounging room. It is the gathering place where the fellows spend a social hour together, and may read or write letters. In the background of the picture is a soldier with darkened spectacles playing a phonograph, while others chat or listen to the music. The association that patients have with one another in social diversions is one of the main elements in keeping up their morale, which is so important to their recovery. The blind man's attitude toward his misfortune and toward his companions, largely determines his success in later life.



Fig. 8. Through the lovely gardens of Evergreen the men delight to take their friends. This is the Elizabethan garden. The beauty of the place is important in winning the confidence of the soldier's family who sometimes hate to leave him in stranger's care.



BLINDED SOLDIERS BECOME SELF-SUPPORTING BEFORE GOING BACK TO CIVIL PURSUITS—THE PICTURES TELL HOW THEY LEARN TO BE BLIND

Fig. 9. Operating a small switchboard is one means of livelihood open to the blind which men at Evergreen are taking up. This method has already been tried out with success in civilian life among the blind and partially blind, and promises to be a popular occupation. A quick mind and more than ordinary keenness of hearing and touch are prerequisites for the blind student of switchboard operation. The exercise of several faculties simultaneously, the necessity for concentrating the attention on the switchboard for continuous periods of time, and the ability to think and act quickly, all enter into the work of the operator, who, to be successful, must possess steady nerves and quick wits. Unless the patient has these faculties well developed, he is advised against attempting this work.



Fig. 10. Carpenters' tools teach the men much about the usefulness of their hands, and, though none of them may expect actually to become carpenters, the training in the management of their fingers, and the use of instruments which they receive will be invaluable. This form of training, which develops skill in the use of one's hands and fingers as it does, is of fundamental importance in the preparation for more elaborate

tasks in the occupational courses which is to fit the patient for a new vocation. The industrial teachers study the motions that enter into each separate operation of the hands or other muscles and utilize the knowledge thus gained in correcting wrong movements or unnecessary movements which most patients perform in learning. The teachers study each movement with the aid of moving pictures, by the use of which time-studies are made.



Fig. 12. Swimming Pool at Evergreen Hospital. Being blind is not always the misfortune it seems, especially when one can follow a sport like swimming, which may be a hobby of the blind person as well as the normal-sighted person. Indulging in the manly art of swimming and similar sports develops the handicapped man's confidence in himself more surely than months of lectures and instruction. It promotes a sense of security.

Fig. 11. (Above.) In the popular dance hall. No form of recreation is more generally enjoyed by the blind.

Fig. 14. (Below.) Puzzles for finger training and for fun.



Fig. 13. Exercise in the gymnasium keeps the patients in physical trim and develops muscular adeptness. Exercises which promote better coordination of the muscles of all parts of the body are particularly useful in the rehabilitation of the blind. The new habits which blinded men must cultivate in their daily life are easier to acquire when systematic exercise of the muscles can be carried on regularly.

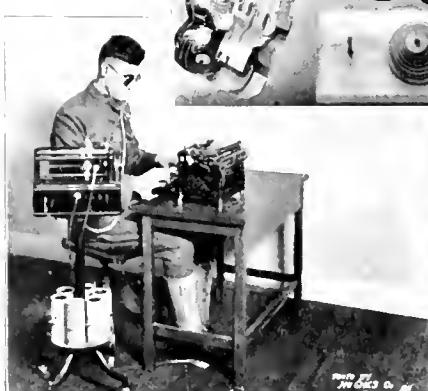


Fig. 15. Dictaphone operating useful to typewriters. It is obvious that for blind men, properly trained, the commercial world offers the most favorable opportunities, and a great deal of attention is being paid to preparing men for this line of work.



Fig. 16. Bookbinding affords valuable finger training, and it is possible that some of the men may find an opportunity to follow this occupation for a living. It has long been a favorite means of occupying the blind who frequently become very proficient.

CONSTITUTIONAL FOUNDATIONS OF FEDERAL PUBLIC HEALTH FUNCTIONS

BY FRANK J. GOODNOW, PRESIDENT, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

THAT the Government of the United States is a Federal Government is a commonplace not only to him who has made a study of its constitutional law but as well to the average citizen. The legal effects of the Federal character of our government are, however, not altogether clear even to the lawyer, much less to him who has not been initiated into the mysteries of our constitutional law. The Constitution contains so many general clauses that resort must continuously be had to the courts for interpretation and construction, with the result that the exact and precise meaning of many constitutional provisions can be ascertained only by an examination of a long list of decisions. Where no decisions have been made on a particular point, we must reach our conclusions as the result of argument based on decisions made with regard to other points.

There are, however, certain general principles of construction, a knowledge of which will be of great assistance in enabling us to reach a determination as to the extent of power possessed by the national government and is absolutely necessary to the answer of the question which has been chosen for discussion to-day.

Probably the two most important of these principles are:

First, That the national government may, under the Constitution, exercise only those powers which have been clearly granted to it by that instrument; and

Second, That where the Constitution thus clearly grants a power to the national government in the exercise of such a power is binding upon the states and upon the people of the United States even in case there may be a conflict between a national law and a state law.

A keener realization that insanitary places, epidemics, and preventable diseases, are matters no longer of merely local concern should have the effect of causing a broader interpretation of powers for the enforcement of public health measures.

But whatever may be the outcome of the future, for the present it is safer to base such health powers as the Federal Government may possess upon either its powers over commerce or its taxing powers.

As matters of national interest assume greater importance, it follows that the powers of the Government will increase to suit the changes in our national life.

To state these principles in another way it may be said that the national government is a government of enumerated powers, the presumption, where no mention of a power in the national government is made, being in favor of the power of the states, but state law must give way to national law in the case of all matters as to which the national government is competent and has taken action.

The national government, although of enumerated powers, is supreme in the exercise of the powers enumerated.

If now we examine the Constitution with the purpose of finding in the enumeration of powers granted to the national government the mention of any power over the public health we shall discover that no such power has been expressly granted. We shall find, however, one clause granting the power to make all laws necessary and proper for carrying into execution any of the powers vested by the Constitution in the Government of the United States or in any department or officer thereof.

General Provisions of Constitutions

We must, therefore, examine some of the general clauses of the Constitution with the purpose of ascertaining whether any of these when combined with the power to make all laws necessary and proper for carrying into execution the powers granted are or may be construed as granting to the national government powers relative to the public health.

The most important of these general clauses from the point of view of to-day's discussion is unquestionably the power to regulate commerce with foreign nations and among the several states. It is to be noted that the Constitution neither defines nor describes "commerce," nor states what is the meaning of the words "regulate" and "among the several states."

*Read before the Conference of State and Provincial Boards of Health, June 7, 1919, at Atlantic City, N. J., and published simultaneously in MODERN MEDICINE and the American Journal of Public Health.

At first, governed by the particularistic states' rights ideas of the time, which were justified in large measure by the existing economic conditions, both Congress and the Supreme Court took a rather narrow view of the extent of this power. Thus when it came to be regarded about 1820 as necessary that the central government should make some provision for means of communication between the eastern states and the new states which had been established west of the Alleghany Mountains and in the Mississippi Valley, it was believed that the only authority possessed by Congress was to build roads, which after they were built should be handed over to the states. The states alone, it was thought, might administer them and care for their maintenance and repair.

Federal Powers Over Commerce

The gradual centralization of economic conditions, which has been characteristic of American development, has, however, caused the adoption, at the present time, of a much more extended conception of national power under the Constitution. Thus the meaning of the word "commerce" has been greatly enlarged. Commerce as a subject of congressional regulation embraces at the present time, in the first place, transportation by both land and water and the means and instrumentalities of transportation. Commerce, *i. e.*, the thing which under the Constitution may be regulated by Congress, therefore includes not merely the act of transporting persons or things from one place to another, but as well both artificial land and water routes and their terminals such as harbors, the vehicles by which the act of transportation is performed, and the persons, both carriers, shippers and consignees on the one hand, and employers and employed on the other, who are engaged in the act of transportation.

In the second place, commerce embraces purchases and sales and the negotiations entered into in order to lead to sales of all articles ordinarily made the subject of trade, as well as agreements for such purchases and sales, made both between the purchasers among themselves, and the sellers among themselves, on the one hand, and between the purchasers and sellers with each other on the other.

Trade Relationships and Manufacture

In other words commerce in the constitutional sense includes on the one hand the physical instrumentalities by which commerce is carried on and on the other the transactions on which trade relationships are based.

Finally, while commerce does not include manu-

facturing, the tendency is to regard manufacturing as a part of commerce where its regulation is necessary to the effective regulation of what is admittedly commerce.

All of these things, operations, and processes are regarded as within the regulatory power of Congress, provided they can be regarded as a part of commerce "with foreign nations" or "among the several states." Commerce of such a character is held to be that which originates in one state and terminates in another, as well as commerce which originates and terminates in the same state, provided the regulation of such commerce is necessary to the effective regulation by Congress of what is recognized as commerce with foreign nations or among the several states.

The word regulate is given an equally wide meaning. Thus it is held that the power to regulate commerce includes the powers:

First. To construct, or provide, by the chartering of companies, for the construction of routes by land or water over which commerce with foreign nations among the several states is possible, and to lay down the rules to be observed by those making use of such routes.

Second. The power to regulate includes the power to determine the private legal relations which shall exist among those persons engaged in the commerce subject to regulation, so far as those legal relations may affect the carrying on of commerce. Thus Congress may regulate the contracts and liabilities between shippers and carriers, between carriers and their employees, between sellers and between purchasers, and between sellers and purchasers.

Control by Power of License

Finally, the power to regulate includes the power to prohibit commerce in certain articles and certain methods of carrying on commerce and to license those engaged in commerce.

The enormous extension which has been given to the power of Congress to regulate the commerce among the several states is causing the old distinction between a commerce among the several states which is subject to Congressional regulation and commerce within the limits of a single state which is subject to state regulation, almost to disappear and to subject all commerce to the power of Congress. This distinction has disappeared with regard to commerce carried on by water, which is spoken of as navigation.

The power of the national government to regulate commerce may be exercised, it will be noticed, not merely with the idea of promoting commerce from an economic point of view but as well as

with the idea of limiting commerce in order to protect the public health or safety. It includes, therefore, the power to establish quarantines and to deny the right of entry into the country or of transportation from one state to another to objects or persons where that entry or that transportation may, in the opinion of the competent authorities of the national government, endanger the public safety.

The health powers which Congress possesses under the commerce clause are as a matter of fact both because of actual conditions and also probably owing to our constitutional theory larger in the case of foreign commerce than in that of commerce among the several states. At any rate, it is certain that in the case of foreign commerce the same perplexing questions which present themselves in the case of commerce among the several states do not arise. In the case of foreign commerce the only action the national government can, in the nature of things, attempt to take is action in the nature of an embargo or an inspection. There is no question that it may do either of these things.

Matters Under State Jurisdiction

In the case of commerce among the several states, however, conditions are different. Congress may, it is true, deny to almost anything it sees fit the right to be an article of interstate commerce, and may punish those who, contrary to the law, ship the prohibited article from one state to another. But it is incompetent to prohibit either the manufacture or the use within a state of an article however harmful since these are matters within the jurisdiction of the states and not in that of the national government. All the United States government can do as a direct result of its commerce powers is to prohibit, under criminal penalties, the interstate transportation of articles.

Generally speaking, interstate or foreign transportation does not begin until the articles start on their journey. Any action which precedes transportation has to do with manufacture rather than with commerce and is, therefore, not within the competence of the national government except in so far as its regulation may be necessary and proper for the effective exercise of the power to regulate commerce. Transportation, furthermore, ceases when the articles have reached their destination and have either been taken out of the original package in which they were shipped or have left the hands of the person who brought them into the state, *i. e.*, the consignee. Congress may not regulate or prohibit their use after they have thus fallen under the power of the state.

The United States government may, however, as has been said, provide for the criminal punishment on the one hand of him who makes the prohibited shipment and on the other hand of the consignee who sells the prohibited article before the original package is broken. To exercise this power, however, it must have the means of determining whether the article transported falls within the prohibited class. It thus may provide for the labelling of the articles transported and for the inspection at the place of manufacture of articles intended for interstate transportation as well as for the licensing of the persons engaged in their manufacture. The United States government has not, it is true, either inspection or licensing powers to the exercise of which manufacturers of articles destined for consumption within the state of manufacture must submit, but it has the power to deny to articles not inspected and not made by licensed manufacturers the right of interstate transportation.

Food Law and Child Labor Act

Probably the two most notable attempts of the national government to regulate commerce among the several states in the interest of the public health are the Pure Food and Drugs Act, and the Child Labor Act. The first, which forbade the transportation from one state to another of adulterated food products and drugs was upheld by the Supreme Court as a constitutional exercise of legislative power. The second forbade the transportation in commerce, among the several states, of goods made in factories in which children under fourteen were employed or in which children under sixteen were employed more than eight hours a day. This act was, by a divided court, held unconstitutional because it was regarded as an attempt to regulate the methods of manufacture within a state which were a matter for state and not for national regulation. The harm to health, which resulted from the manufacture of articles made by child labor, is done in the state of manufacture. The transportation of such articles cannot, in the nature of things, be harmful. The damage done is thus due to manufacture and not to commerce.

We must, therefore, conclude that the health powers of Congress to be derived from the Commerce Clause of the Constitution relate for the most part to the act of transportation as it has been defined by the decisions. Whether this will always be the rule is open to come question. For in other directions, of which decisions under the Anti-Trust Act are examples, actions which related to manufacture rather than to transporta-

tion have been held to come under the regulating power of Congress. On the theory that they were prohibited by the Anti-Trust Act combinations both of employers and employed with regard to manufacturing and sales within a state rather than transportation have been punished as illegal.

Taxing Power and Its Principle

The second great source of national power with regard to the public health is to be found in the power granted by the Constitution to Congress to "lay and collect taxes, duties, imposts, and excises, to pay the debts and provide for the common defense and general welfare of the United States."

The powers derived by Congress from this clause of the Constitution are of two kinds. They are in the first place repressive and in the second place they are powers of positively promoting the public welfare.

In the first place Congress may, in the exercise of its taxing powers, impose on any occupation or any article which is deemed to be harmful a tax of a prohibitive character, for, as the Supreme Court has on more than one occasion said, "the power to tax is the power to destroy." An instance of the exercise of the taxing power by Congress with the purpose of making impossible the production of the article taxed is the law taxing phosphorus matches. An example more recent of this method of protecting the public health is the provision in the last revenue bill imposing what amounts to a prohibitive tax on all manufacturers employing child labor.

Public Health and Taxing Power

It will be noticed that the powers relating to the public health, which may be derived from the taxing power of Congress, are in some respects broader than those which find their origin in the commerce power. Under the former, methods of manufacturing within the states may for all practical purposes be prohibited, although Congress has no direct power of prohibition. Such a method of protecting the public health naturally lends itself to matters where prohibition rather than regulation is sought. But it may perhaps be suggested that this method of prohibition permits of the accomplishment of a good deal to which at first blush it may not seem to be adapted. Thus, what is to prevent the imposition by Congress of prohibitive taxes on all manufacturers who do not provide safety appliances for the protection of their workers or who do not secure sanitary conditions under which work may be carried on? The only answer to this question is that, while the limitations on the taxing power of

Congress are few in number and rather ineffective in character, it has usually been considered that the classification of articles and persons for taxation must have some reasonable relation to the object sought. It may well be that either because such a classification would be regarded as improper or because the attempt to exercise the taxing power in this way would be regarded as a palpable evasion of the Constitution and an encroachment upon the rights of the states, such laws as have been suggested would be held to be unconstitutional. The result of the litigation, which will unquestionably follow the attempt to impose special taxes on manufacturers employing child labor, will, doubtless, throw much light on this up-to-now unsettled question.

The Harrison Narcotic Law

Another example of the use by the United States Government of its taxing power in the interest of the public health is to be found in the so-called Harrison Act relative to the sale of certain drugs. The purpose of this act is not so much prohibition as regulation. It is an interesting example, further, of an attempt to secure through the exercise of the taxing power information as to the users of drugs which is available for use by the officers of the states charged with the enforcement of laws regulating the use and sale of drugs. It may not be said that the use of the taxing power for this purpose is clearly constitutional.

But Congress may use its taxing powers not so much to destroy as to promote directly the public welfare. That is, it may appropriate the money derived from the collection of taxes for helping the states solve their sanitary problems. It may establish, as it has established, a national public health service which may be authorized to cooperate with and assist the health authorities in the states. It may establish hospitals and sanitariums provided it secures the consent of the states in which they may be situated. It may make grants to the states in aid of their health administration and may make such grants subject to the condition that the states maintain certain standards and submit to inspection.

But while the United States government may thus exercise through its power of appropriating money, a profound influence on state public health administrations and through them on the public health of the country generally, it may not of its own accord and without the consent of the states concerned step in to interfere with the sanitary work of the states.

In what has so far been said what has been borne in mind has been for the most part the

power which the United States government possesses with regard to matters usually regarded as reserved by the Constitution for the states. It must, however, be remembered that the United States government has powers exclusively its own, such as its powers in the District of Columbia, the territories and the United States reservations. Here its power is unlimited by any consideration of states rights. Furthermore, in time of war its powers to raise and support armies, to provide and maintain a navy, and to declare war are construed to carry with them the power to do, even within state lines, what is necessary to protect the health of its soldiers and sailors. We have recently had notable instances of the exercises of such powers. But fortunately a state of war is not a normal condition, and while the health powers of the United States government at such a time are very important still they are infrequently exercised and consequently have little permanent influence.

A word also should be said as to the possibility of the exercise of health powers by the United States government as a result of its exercise of its treaty-making power. It is unquestionably true that Congress may exercise legislative power to carry out the provisions of a treaty which it would not possess had the treaty not been made. We have had, however, few instances of the exercise of such powers and fewer still decisions upon their propriety. It would, therefore, be unwise to base any large health powers upon so uncertain a foundation. But, it is well to remember that the tendencies nowadays are centripetal in character and that, with the increasing economic unity of the world, much may in the future be desirable which in the past would have seemed almost outside of even the realm of speculation.

But whatever may be the outcome of the future, for the present it is safer to base such health powers as the United States government may possess upon either its commerce or its taxing powers, and there is little doubt that, with the increasing feeling that our national interests are growing in importance with the improvement in the means of communication, the powers of the United States government will increase to suit the changes in our national life.

Insanitary conditions, as a matter of fact, are no longer of merely local concern. Epidemics are not respecters of state or even national lines. A keener realization of this fact will unquestionably have the effect of causing a broader interpretation of existing powers and may well result in constitutional amendment where such broader interpretation is not possible.

DR. ABRAHAM JACOBI—IN MEMORIUM



Abraham Jacobi, 1830-1919.

The career of Dr. Abraham Jacobi is ended, at the age of 88 years, but the fruits of those professional studies and endeavors to which his life was devoted remain as permanent benefits to the public which he served, and the profession which honored him in life and still honors him in death.

His sudden death July 10, at Lake George, N. Y., where he had his summer home, deprived the American medical profession of one of its most noted men.

Dr. Jacobi was born at Hartum, Westphalia, Germany, May 6, 1830. He studied at three German universities, Griefswald, Göttingen, and Bonn. He was graduated from the University of Bonn in 1851. While a student he was identified with the German revolutionary movement in 1848. In connection with his activities he was imprisoned for two years. He escaped from imprisonment and came to America.

From 1860 to 1864 he held the professorship of diseases of children at the New York Medical College, and in 1864 he accepted a similar position with the University of New York. He became professor of pediatrics in the College of Physicians and Surgeons in 1870, a position which he held for twelve years.

Nearly every honor which the medical profession could bestow upon one man in a lifetime were his. He was twice president of the American Pediatric Society and the first chairman of the Section on Diseases of Children of the American Medical Association. He was president of the Association of American Physicians in 1896; of the New York State Medical Society in 1882; of the New York Academy of Medicine from 1885 to 1889.

His principal contributions to the literature of medicine are contained in the *Collectanea Jacobi*, in which are assembled address and monographs which, in some instances, attracted unusual attention.

PROPER RELATION OF FEDERAL AND STATE GOVERNMENTS IN PUBLIC HEALTH WORK

BY ALLAN J. McLAUGHLIN, M.D., ASSISTANT SURGEON GENERAL, UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C.*

THE ideal relation between Federal and state governments in public health work should be such as to insure the covering of the entire field of public health between them. All gaps should be covered by one or the other jurisdiction, and in twilight zones there should be the most complete understanding of a frank policy which would preclude overlapping duplication or conflict.

If, under such a policy, the Federal Public Health Service did work which the state should do but was unable to do, the Federal Health Service would be acting presumably under its authority to assist states, and its activities should not continue beyond the time when the state officials were able and willing to take over the work.

In order to consider the proper relation between Federal and state public health agencies, it is necessary to review briefly the powers and functions of the United States Public Health Service and the authority therefor.

The functions of the United States Public Health Service may be considered under the following heads:

1. Police.
2. Investigative.
3. Demonstrative.
4. Coordinative.

Police power has been given very sparingly to Federal health authorities and delegated by states in large measure to local authorities because the ultimate application of police power to the individual citizen logically belongs to the agency with which he is in direct contact, viz., the local board of health.

It is clear that police power not specifically given by the Constitution to Federal agencies is reserved to the states or to the people. There is also police power implied but not expressed in

To secure the maximum of improvement in national health, nation-wide programs must be devised for each problem with which public health officers are confronted.

The Federal health service devises such programs on the basis of its information on disease prevalence.

The success of such work lies in the development and utilization in every state of strong divisions for the control of communicable disease, and in cooperation with local agencies of specially trained men from the Federal service who keep all such measures up to uniform standards.

the Constitution inherent in the Federal government in connection with the general welfare and interstate commerce clauses. This power is necessary to cover conditions not amenable to or corrigible by state police power and its exercise cannot be a usurpation of state authority.

Congress has repeatedly given police power by statute to Federal agencies to cover such conditions but has always maintained the attitude that in health matters the state and local agencies should be utilized to the limit of their legitimate fields.

The Quarantine Law of 1890 gives very definite powers to the Federal health authorities to prevent the introduction of cholera, yellow fever, smallpox or plague from one state to another without reference to utilization of state machinery, and provides for the promulgation of rules and regulations with penalties for infraction thereof.

The Quarantine Law of 1893, which includes all communicable diseases, provides that the Public Health Service shall cooperate and aid state and municipal health boards in the execution and enforcement of state laws and regulations and of Federal laws and regulations. It provides that where no state or local regulations exist or where these are insufficient, the Secretary of the Treasury shall make such additional rules and regulations as are necessary to prevent interstate spread of such diseases.

It provides, further, that the rules and regulations promulgated by the Secretary shall be enforced by state and local authorities where they will undertake to execute and enforce them, but if state or municipal health authorities fail or refuse to enforce said rules and regulations, the

*Read before the Conference of State and Provincial Boards of Health, June 7, 1919, at Atlantic City, N. J., and published simultaneously in MODERN MEDICINE and the American Journal of Public Health.

President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary.

In order to carry out this policy of utilizing state and local health machinery in the prevention of the spread of disease, Congress has repeatedly appropriated large sums "to aid state or local boards or otherwise in preventing and suppressing communicable disease" (Epidemic Fund).

Congress annually appropriates for the Interstate Quarantine Service sums of money from \$15,000 to \$1,500,000 for cooperation with state and municipal health authorities in the prevention of the spread of disease in interstate traffic.

The question of delimiting the police powers of Federal and state authorities is an academic one—and for practical purposes satisfactory results can be secured in most sections by utilizing state power alone coordinated by the Federal Health Service in a national program.

As the state health machinery becomes more highly organized and perfected, the need of exercise of Federal police power will diminish and the need of Federal coordinative activity will increase.

The prevention of the spread of epidemic disease from one state to another, may be handled in one of two ways:

First, by the present system of awaiting the outbreak of an epidemic and then attempting its suppression.

Second, by maintaining such a close check upon disease prevalence that prompt and early information of undue prevalence is at once available, and suppressive measures taken before actual epidemic proportions are reached.

It is manifest, therefore, that the policy of the United States Public Health Service should be to develop state health departments and especially those divisions in a state health department whose effective operation in the interest of the state itself tends to prevent the spread of disease from one state to another.

The most effective means of preventing interstate spread of disease at the disposal of the Federal government to-day lies in the development and utilization in every state department of health of strong divisions for control of communicable diseases, water, and sewage.

To develop these divisions and bring them to a standard of uniform excellence it is necessary to detail trained men from the Public Health Service to assist the state health officers. In many states these divisions (usually called divisions of communicable disease and divisions of sanitary engi-

neering) do not exist or exist in name only. In states which possess such divisions plain justice suggests that the Federal Government should render some assistance in doing work which is called for by Federal law and regulation.

Investigative Functions

The investigative function of the Public Health Service has no limit other than the amount of money which may be appropriated by Congress.

The Act of 1912 authorized the service to study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage, and the pollution directly or indirectly of the navigable streams and lakes of the United States.

Under this very broad authority, investigation of any phase of public health work may be undertaken. The Act further provides for the publication of information for the use of the public.

Sufficient funds should be secured from Congress to undertake and carry on such research as is necessary in order to furnish to the health officer in the field diagnostic, prophylactic and curative weapons for the suppression of communicable disease.

The economic advantage of doing this in one hygienic laboratory rather than in forty-eight is at once apparent.

Demonstrative Functions

The work done under the investigative authority of the Act of 1912, especially the field work, is nearly always demonstrative and can be utilized as public health demonstrations of all kinds.

In addition Congress has given specific authority for demonstrations in rural sanitation contingent upon partial support by state or local agencies.

Nothing compares in effectiveness with an actual demonstration of how work should be done in the individual communities. Here again the United States Public Health Service is limited only by the amount of money appropriated by Congress.

Coordinative Functions

The coordinative function of the Public Health Service in achieving national success against any public health problem is perhaps the most important function which the service exercises. Some Federal coordinating agency is necessary in order to secure a synchronous attack upon any disease, with uniformity of method over the entire area of the United States. To secure the

maximum of improvement in our national health we must have nation-wide programs for each problem with which health officers are confronted.

The example of our Venereal Disease Campaign serves to show what may be accomplished in other fields by the same methods.

The coordinative function of the Federal Public Health Service is but the national demonstration of what is exercised by state and local health authorities over smaller areas.

In other words, public health organization—Federal, state and local—should have the following relationship:

SUPERVISORY AND COORDINATING AUTHORITY	WORKING UNITS TO BE COORDINATED
U. S. Public Health Service	State Departments of Health
State Department of Health	Local Health Departments
Local Health Departments	Individual Citizens

The coordinating and supervisory authority furnishes the program in order to secure teamwork and endeavors to have this program carried out by all the units within its jurisdiction.

The Public Health Service has a detailed comprehensive nation-wide program for every public health problem, but these programs cannot be put into effect without adequate funds.

I hope I have made it clear that the only need of the Public Health Service is sufficient money to carry out its programs.

The service now possesses all the authority and

function which can be given by Congress to a Federal health agency within the limits of the Constitution.

Public health work aims at the eradication of preventable disease, the elimination of corrigible, physical and mental defects, and the maintenance of all individuals in the best possible physical and mental condition.

To achieve such aims demands a partnership with an exhibition of most perfect teamwork by Federal, state, and local officers. I have already mentioned such a partnership in the venereal disease campaign. The proposed Lever Bill for rural hygiene provides, if anything, a better example of what such a partnership should be.

There is ample precedent for this type of Federal cooperation with state and local authorities, as Congress has passed similar legislation covering good roads, vocational education, and farm demonstration work.

Let us waste no time in a futile effort to delimit accurately the police power and authority of each of these three jurisdictions, but let us leave such discussion to the academicians. As practical men let us disregard the theoretical boundaries of varying police jurisdictions and attack each health problem by joint concerted action according to a nation-wide program, remembering that the spread of disease recognizes no boundaries—local, state, or Federal.



When is there happiness in a bottle of milk? These city children are experiencing enjoyment with three straws and a bottle of milk. Part of the program of the health weeks that many cities are conducting this year is to teach the food value of milk and the need for clean milk. The mothers in crowded districts have been made to know the food value of milk by many years of effort in teaching food standards, and their children are learning the lessons in food standards from their mothers. (Copyright by International Film Service Co., Inc.)



MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

HIGH GRADE SURGICAL SERVICE, WELL ORGANIZED, CHEAPEST UNDER COMPENSATION ACTS

SOCIETY at large took a great forward stride when the system was instituted in the several states providing for the care of the injured workman at his employer's expense, wherein the employee was compensated for his lost time, whereby he was paid a definite sum for permanent disability, and where loss of life brought at least some financial assistance to the family of the workman killed in industry. In this way society made some effort to overcome the injustice of the loss of life and limb incident to production.

The operation of Workmen's Compensation Acts focussed attention upon the fearful economic loss from preventable accidents. Coincident with the establishment of the Workmen's Compensation Acts there sprang into being the "Safety First" movement,—one of the most strikingly successful educational movements of this age. While it has been often claimed that the economic pressure of the Workmen's Compensation Acts was responsible for the fruits of the safety movement, closer analysis leads one to believe that a far higher purpose than the mere financial one must have actuated the proponents of the safety movement in order to obtain such remarkable results.

Praiseworthy as has been the legislation which created the industrial commissions of the various states, much remains to be done to achieve the best results possible under the plan of furnishing surgical attention to the injured. Workmen as a class are entitled to better surgical service than they are to-day receiving on the average. In the main, medical men and not surgeons are looking after the injured. Fewer cases than so deserve are receiving hospital care. The percentage of permanently disabled is greater to-day than would be the case under a better organized surgical service directly under the control of the Compensation Commission.

Under the former plan of the self-insured and the re-insured, there existed perhaps a more definite impelling motive for a careful selection of the physicians who were to look after the risks of the various industries. The fear of bad sequelae,—ankylosed joints, malformations, permanent crippling, etc., with the attendant law-suits,—to say nothing of the undesired publicity connected therewith, brought the skilled surgeon to the injured man perhaps more frequently than at the present time. At any rate, more injury cases were sent for their first attention to hospitals, where, in most instances, they received skilled care.

With the coming of the Workmen's Compensation Acts, which allow the patients free choice of physicians the injured man most naturally turned to his family physician in the first moments of his mental and physical distress. Thoughtless employers, and especially those not intelligent enough to take part in the safety movement for their own shops, "passed the buck," as it were, to the man himself, or simply secured the nearest physician for the care of their men.

The foregoing is not offered as a criticism of the profession, the employer, the compensation commissions, or the employee; but points out the mistake naturally coincident with the institution of such a huge new social undertaking. It would seem, however, that we now have had sufficient experience and that enough time has elapsed to emphasize the necessity for definite organization of the surgical forces of the state under the industrial commissions in order to assure the workmen full justice after injury.

How inadequate our organizations to-day are for this tremendous task is perhaps best illustrated by the mechanism that exists in Ohio, said to have what is perhaps the best Workmen's Compensation Act so far enacted in any state. Yet, here in Ohio, where approximately three million dollars are paid out annually for surgical and hospital care, the surgical organization is so woefully

inadequate that it is physically impossible for the medical director even to approximate a critical review of the work done by the doctors of the state at large in connection with the surgical care of injured workmen. The salaries allowed the surgeons who supervise the work are totally inadequate, while the number of such physicians is absurdly small.

Any business spending \$3,000,000 would not hesitate to expend in the neighborhood of \$150,000 in executive salaries. For the purpose of organizing such expenditure men of the highest capacity would be secured at salaries ranging down from \$20,000. But the Industrial Commis-

sion of the state of Ohio, however, pays its chief surgeon the munificent salary of \$3,500.

Should not the legislatures, the industrial physicians, and the industrial commissions make this subject one of immediate inquiry to the end that intelligent service, organized by districts, be instituted under the various compensation acts so that the injured workmen may receive better surgical care? Such organization, in connection with more scientific rehabilitation work, will not only save life and limb, and reduce the number of the permanently disabled, but would considerably lessen the premiums now paid to cover such service.

EDITOR.

WOOD ALCOHOL POISONING

BY R. P. ALBAUGH, M.D., UPSON NUT COMPANY, CLEVELAND OHIO, FORMERLY DIRECTOR, DIVISION OF INDUSTRIAL HYGIENE, OHIO STATE DEPARTMENT OF HEALTH

WOOD alcohol is used in a great variety of industries in which it is recognized as such and, in addition, is encountered many times as an ingredient of various substances not suspected as containing wood alcohol. It is frequently used as a denaturant as well as a substitute for ethyl alcohol. It is an important industrial poison chiefly because of the ease with which it gains entrance into the body and also because of its highly toxic nature. It may be absorbed from the digestive tract, the respiratory tract, or through the skin. It is very rapidly absorbed, death having occurred when persons were subjected only a day or two to the fumes. It should be mentioned also that its introduction into beverages has been frequently reported.

Symptoms.—In acute cases there are usually headache, nausea, extreme weakness, dilated pupils, conjunctivitis, temporary blindness, slow respiration, weak and rapid heart action, cold and clammy extremities, and perhaps deep and prolonged coma ending in death from cardiac collapse. In the chronic type of cases, permanent blindness is the chief symptom. The blindness in acute cases is due to an inflammatory condition of the optic nerve and the ocular conjunctiva, whereas the permanent blindness in chronic cases is due to atrophy of the optic nerve. Inflammation of the skin of the hands and arms frequently occurs among workers exposed to the fumes or those actually handling wood alcohol.

Diagnosis.—If there is knowledge of exposure, the diagnosis should be simple; otherwise a differential diagnosis must be made from epilepsy

and from all types of coma—uremic, diabetic, cardiac, toxic, cerebral, and traumatic. The diagnostic features of the acute type of poisoning are extreme physical weakness, acute gastro-intestinal symptoms, blindness, and deep and prolonged coma. These symptoms, together with history of exposure and an alcoholic breath, are the cardinal points in diagnosis.

Treatment and Prevention.—The treatment consists essentially of ridding the body of the poison, and supportive measures. Frequent gastric and rectal lavage should be carried out early, as wood alcohol is but slowly and incompletely oxidized in the body to the more dangerous poisons, formaldehyd and formic acid. Transfusions or intravenous saline or sodium bicarbonate infusions should be administered. The patient should be kept warm and oxygen, adrenalin, caffeine, camphor, strychnin, or digitalis freely given. Prevention depends upon elimination of contact with the skin, labelling of containers, and sufficient ventilation to keep the extent of wood alcohol in the air below one part per ten thousand volumes of air.

INDUSTRIAL BOARDS' PROCEEDINGS

The proceedings of the fourth annual meeting of the International Association of Industrial Accident Boards and Commissions have been reprinted in Bulletin No. 248 of the United States Bureau of Labor Statistics, workers' insurance and compensation series. The discussions during the convention, which was held in August, 1917, were arranged under the following divisions: accident prevention; how claims are handled, with special reference to lump-sum settlements; medical aspects of compensation insurance; medical competence and hospital efficiency; accident problems; needed changes in legislation; administrative problems.

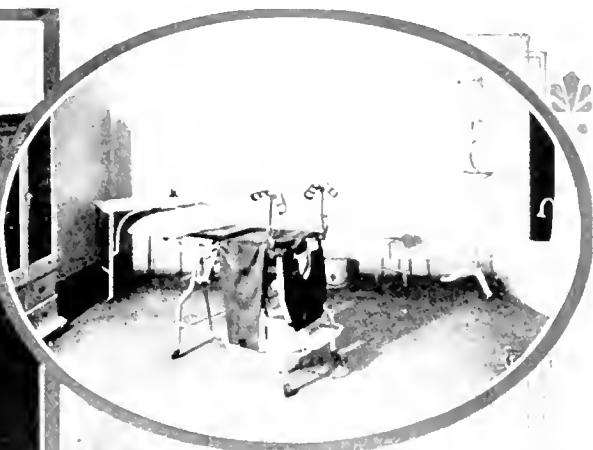
*This article is the third of a series by Dr. Albaugh on the common industrial poisons. The fourth article in the series, on "Anilin Poisoning," will be published next month.

THE SURGEON IN RELATION TO PUBLIC UTILITIES*

BY CHARLES M. HARPSTER, PH.G., M.D., F.A.C.S., TOLEDO, O.; CONSULTING CHIEF SURGEON FOR OHIO, HENRY L. DOHERTY COMPANY, NEW YORK CITY†



Consultation of the chief surgeon and staff of the Doherty Companies in Ohio. At the right are two views of the surgery at the Toledo Railways & Light Company.



Part I

THE initial account of the work of the medical department of the Toledo Railways & Light Company was made in the July, 1918, issue of the *Doherty News* in which report the institution of this service is commented upon as a logical outcome of the consistent policy of the Rail-Light Company in considering the welfare of the members of its organization.

Before the work was undertaken a thorough study of methods in vogue throughout the country was made under the direction of the general safety department at New York, the local safety agent, and the chief surgeon for the companies. As a result of these investigations a system of examination and records was designed particularly to meet the existing conditions.

It was thought best to establish the medical department directly in connection with the offices of the consulting surgeon and special facilities were installed to take care of the work. The physical examinations of the men were originally made at the medical department, but a more convenient arrangement has been found by handling all the physical examinations at the employment bureau, which is situated in connection with the general offices of the company. As an adjunct to

the plan, each plant is equipped with first-aid stations. Typical views of these stations are presented of the installation at the Acme power plant. Only one unit of this plant is completed, but as it will have ten units when finished a first-aid station adequate for the care of ten units has been provided. Paraffin paper is supplied at these stations. Its use in the case of burns and many other wounds has revolutionized the treatment of these cases, and has very materially shortened the period of disability.

The work of this corporation in protecting the health of its employees as an example of the modern trend of industrial medicine is commented upon in the *Ohio State Medical Journal* of August, 1918, and the consulting surgeon is given credit

*Dr. Harpster, in his capacity of consulting chief surgeon in Ohio for Henry L. Doherty & Company, is chief surgeon of the following Ohio public service companies: Atlas Chemical Co., Toledo; Acme Power Co., Toledo; Toledo Railways & Light Co., Toledo; Toledo, Ottawa Beach & Northern Ry Co., Toledo; Toledo & Western Railway Co., Adrian, Mich.; Maumee Valley Railway & Light Co., Toledo; Adrian Street Railway Co., Adrian, Mich.; Toledo Beach Co., Toledo; Toledo Casino Co., Toledo; W. G. Laird Co., Toledo; Industrial Heating Co., Toledo; chief surgeon, Toledo & Indiana Ry Co., Toledo, Ohio.

†A two-part article. The second installment will deal with classification and methods of handling injury cases.

for working out in Toledo a medical system that is recommended to public service utilities throughout the United States. Of the value of this work from a financial standpoint, the *Journal* says:

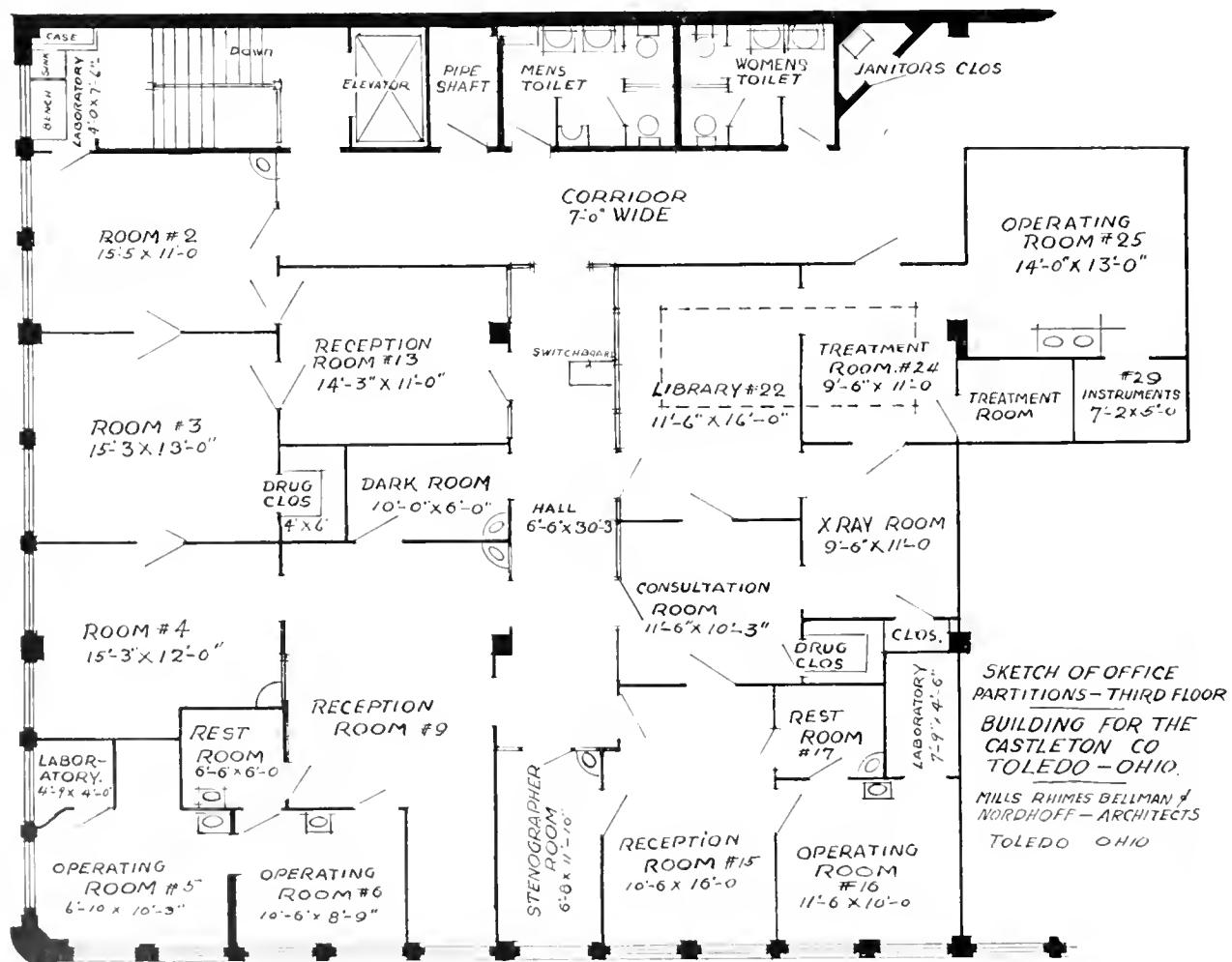
"By a reasonable expenditure in maintaining the medical department, the Toledo Railways & Light Company has secured remarkably good results in keeping up the efficiency of its men, and also in preventing the employment of those with ailments which might not be readily noted. The importance of this can be appreciated in the railway department alone, where, if a motorman is suffering from an affection of the heart or an epileptic condition not noticeable to the casual observer, he would be a hazardous employee rather than an efficient one."

The work undertaken by the medical department is the care of the injuries of the employees. Provision for first aid measures is made as close to the man's work as possible, and for the care of

routine dressings with as little loss of time for the men as possible. A convenient arrangement of first aid stations and dressing rooms encourages the men to have all minor injuries cared for, and makes it possible to follow up all cases under care. As the work became organized, the medical department was expanded so that it is now possible to handle major operations when the exigencies may demand it.

Physical Equipment

The first requisite in the care of injured people is the provision of office equipment sufficient to carry on the work. A number of views of these offices are presented. They are accessibly located. There are the reception hall with information desk and telephone switchboard, one stenographer's room, and one large library. Three general reception rooms are in connection, four consultation rooms, three treatment rooms, one large surgical room with an alcove sterilization room



Floor plan of the offices, laboratories, operating room, and accommodations of the medical service department of the Toledo Railways & Light Company, where the chief surgeon and staff for the Ohio subsidiaries of the Henry L. Doherty Company maintain a headquarters. From this department the medical service for twelve Doherty public service corporations is directed. All the offices or separate rooms are connected with extension telephones. The switchboard and information desk are located in the main hall of the suite. A system of push buttons insures quick communication between offices. The various rooms are well lighted. Sky lights are provided in the large operating room, the x-ray room, and library. The arrangement of the larger operating room and the adjoining instrument and sterilizing room, which occupies an alcove off of the operating room, makes for convenience. Besides the large general reception room, there is a reception room for men and another fitted as a rest room for women.

connected, one cystoscopic and electrical room, one laboratory, one dressing room, one rest room, and a number of supply rooms, toilets, closets, etc. One of the most convenient adjuncts is a large fire-proof vault, a feature considered essen-

tial, for the preservation of records is one of the most important functions of such a department. The arrangement is in straight lines, except in the operating and treatment rooms which have curved corners and mosaic floors. All freak ar-



ideal hospital operating-room. Each of the treatment rooms is an independent unit in which the patient can be cared for without an assistant having to run from one room to another in search of dressings, instruments, etc. Work can be carried on in any one room without interfering with the work of any other room. The plan conceived the provision for efficient emergency work that possibly must be done under great pressure, and

satisfactory. The lighting system is fairly well shown in the accompanying cuts.

The efficiency of a medical department depends largely upon complete and well arranged physical equipment; but it is even more essential to have the loyal support of assistants, associates, and nurses to carry forward a great campaign of industrial betterment. The hearty cooperation of the officials in charge was enlisted at the very

HAVE YOU HAD ANY OF THE FOLLOWING DISEASES OR CONDITIONS?			
Alcoholism	Epilepsy	Hydrocele	Palpitation of Heart
Tropoplexy	Epididymitis	Mysterior	Paralysis
Appendicitis	Pointing Spells	Indigestion	Pain in Region of Heart
Asthma	Fistula Rectal	Intestinal Colic	Pleasir
Bladder Stones	Functional Heart	Liver Disease	Pneumonia
Cancer	Gall Stone Colic	Malarial Fever	Rectal Disease
Chicken Pox	Gastr	Measles	Renal Colic
Chronic Cough	Goat	Mental Derangements	Renal Stones
Chronic Hoarseness	Gonorrhoea	Mumps	Rheumatism
Chronic Diarrhoea	General Debility	Nervous Exhaustion	Scarlet Fever.
Coughing Blood	Hemorrhoids	Neurasthenia	Smallpox
Consumption	Heart Disease	Neuralgia	Skin Disease
Convulsions	Hepatic Colic	Obsesity	Spitting Blood
Diphtheria	Hepatic Stones	Occupational Disease	Stomach Disease
Diphtheria	Hernia	Organic Heart	Stomach Ulcer
Dyspepsia			
Is his appearance that of a temperate man? _____			
Has any members of your household died within the past year from consumption, cancer, or any other contagious or infectious disease? _____ If so, what? _____			
Is there any bodily malformation? _____			
Is there any loss of any part of any members? _____			
If so, give particulars _____			
SIGHT—		Right Eye.	Left Eye.
Pterygium			
Corneal scars or Opacities			
Chart Reading Distance			
Trachoma			
Conjunctivitis			
Color of Eyes			
Is there any impairment of the sight?		If so, what?	
Do you wear glasses?			
If so, for what?			

Upper portion of reverse side of report of physical examination form, which the examining surgeon prepares for each applicant for employment.

under absolutely controllable conditions. All of these objects have been accomplished very well.

There is a large air compressor in the attic as well as a large tank to contain sterile water. Each treatment room is equipped with compressed air, gas, hot and cold water, and fountain cuspidors. Each room can be readily converted for dark room work. The cystoscopic and electric room and one treatment room are finished in black. The surgery, sterilizing room, and the two treatment rooms are finished in white enamel. The surgery is constructed without woodwork. All cabinets except one instrument cabinet are built in the walls, which makes for cleanliness, space-saving, and ease of work. The doors are very large and an operating table can be readily moved from one room to another.

The remaining rooms are finished in silver gray with hardwood floors. The furniture in some of the rooms is silver gray; in others, oak. The walls and ceilings are tan. Ten windows on Adams Street give the north light which is best for most purposes. Artificial lighting is provided by the semi-indirect system and has proved very

inception of this service. The president of the company, the director of safety, and the heads of all departments have uniformly given to the medical department the fullest cooperation. All departments work hand in hand and this unity of purpose and concentration of effort undoubtedly contribute toward the full measure of service rendered by the medical department. Bulletins are used for instruction and notification and the monthly publication of a journal called "Sparks" binds together all activities and keeps the men in touch with and in sympathy for the work.

By the methods instituted in the handling of the cases for these many diversified utilities, the rate of accident claims are shown by careful figures submitted by all departments to have been reduced 38 per cent in 1918. This is proof of the accuracy of the methods used, and its great value aside from consideration of the splendid humanitarian principles involved.

Physical Examination of Workmen

A satisfactory standardization was established at the beginning of the work by subjecting all em-

ployees already in service to the same tests required of all applicants for work. The system also provides for a periodical examination of the men in service. The thorough examination of all applicants has been very valuable in days of labor shortage. It conserves the men by keeping them from unsuitable or harmful employment, and, if the physical examination demonstrates

that a man is not available for one kind of work, he may be transferred to another department and not lost entirely to the industry.

An applicant for any position with the Toledo Railways & Light Company or its affiliated companies first interviews the superintendent of employment at the company's office and if he seems a promising candidate he is given an order to

HEARING—	Right Ear.	Left Ear.		
Watch	.Inches	.Inches		
Is there wax present?				
Has there ever been any discharge from the ears?				
Throat				
Tonsils				
Tongue				
Nose				
Teeth				
F. Filled				
M. Missing				
C. Crowned				
B. Bridge				
P. Plate				
Color of Hair				
Complexion				
Condition of spinal column?				
Scars on body from operation or disease?				
Beard	Mustache			
Applicant's height	Feet	inches	Weight	lbs
Has applicant's weight increased or diminished?				
Circumference of chest at rest	inches		Circumference of chest inspiration	inches
Circumference of chest expiration	inches		Temperature	one minute
Girth of abdomen at rest				
Blood Pressure Cystolic?			Diastolic	
Is there anything abnormal in the character of the respirations?				
State rate and other qualities of the pulse				
Location of apex beat of heart				
Is there anything abnormal in the character of the heart action?				
Is there any thickening of the radial or temporal arteries?				
Condition of feet and hands				
Condition of inguinal rings	Right		Left	
Is there any indication of disease of the urinary organs?				
Long Prepuce				
Scars on Penis				
Nerve Reflexes				
Right Accommodation	Right			
Eyes	Left			
Left Accommodation	Right			
Knees, Right			Left	
Arms, Right			Left	
Ankles, Right			Left	
Gordon, Right			Left	
Oppenheim, Right			Left	
Tendo Achilles, Right			Left	
Ankle Clonus, Right			Left	
Babinski, Right			Left	
Abdominal	Cremasteric	Tongue	Sensation	
Condition of the glandular system				
Condition of bones and joints				
Disqualifying defects are				
Defects that do not disqualify				
Applicants will be rated as First Class, (a); Good, (b); Fair, (c); Poor, (d); Bad, (e) in general mental characteristics and bearing he is _____ and rated.				
Dated at				
Signed by	M. D. Medical Examiner			

The lower portion of reverse side of report of physical examination form shown on pages 304 and 305. A surprisingly large percentage of physical defects are discovered in those who undergo examination. These reports are a valuable source from which to obtain data of almost every sort with regard to the physical deficiencies of workingmen.

report to the medical department. The first part of the examination consists of questions which include the usual queries concerning age, birth, place of residence, previous employment, etc. If these are answered satisfactorily, thorough physical examination is made by one of the assistant surgeons who notes on printed forms the conditions found. The usual blood and urine tests are made, stethoscopic examination made of the heart and lungs, blood pressure is taken, and, in the presence of evidence of any bone fracture, an x-ray examination is made and the exact condition noted. A review of this report is made by the chief surgeon who supplements it with an additional examination, noting his conclusions on special forms. The applicant must pass the color test to rule out any degree of color blindness. He is then reported back to the superintendent of employment as eligible physically. If the applicant wishes to join the railway department, he is then sent to the railway training school maintained by the company.

By carefully checking up the physical condition of new men and those already in the service, it has been found possible to maintain a much higher physical standard among the employees than had otherwise been attained. It is often found that a place in the railway department is sought by a man whose physical condition precludes his becoming a motorman, but if he is a candidate promising in other respects, he is encouraged to try for a place in some other department. Every effort is made to make the department serve the man as well as the industry.

How Injury Cases Are Handled

Except when a major operation is required, all injury cases are taken to the medical department where the necessary work is done. Only a simple dressing may be required, but equipment is available there for almost anything that could be accomplished in a first-class hospital operating room. If after such treatment an injured employee is found able to return to work, he is given an order to report back to his superintendent. If he is unable to engage in his regular duties, light work may be found for him as it has been the experience of the company that, when given something to do, men suffering from slight injuries improve more rapidly than if laid off and given full opportunity to worry about the condition.

However, when the employee returns to work he is not lost sight of by the doctor. His condition is carefully checked up by the visiting nurse who works under the supervision of the chief surgeon. She has a record each day of the men

treated by the doctor. She visits all the plants every day except Sunday, locating each man on her daily list and noting the condition of his injuries. She renews dressings when necessary and makes a daily progress report. She also supervises the condition of the emergency first-aid rooms in each plant, sees that they are in sanitary condition, and that they are supplied with the proper amount and assortment of equipment.

A glance at the list of companies shows that all kinds of utilities are included in this service. Modifications in physical requirements have been made in the routine handling of the physical examinations and methods evolved which make for the efficiency of the department; but it is not alone in raising the physical standard of the men, nor even in the periodic attention to their physical needs that the medical department is made to function.

The institution of a consistently planned system of record keeping and its enforced use in a large number of men, furnish detailed information of great value to medical science and to welfare workers. Such a system compiles data which form a basis for definite estimates of the physical needs of given groups, of the cost of supplying adequate service, and, incidentally, the value of such service, supplemented by health education, in the social welfare of an industrial group. One of the most persistent causes of failure and discouragements in efforts toward social betterment is that fact that remedial measures have been applied as extraneous measures based on insufficient data instead of being designed exactly to meet existing conditions. The medical department is able to tabulate all cases, and make deductions which afford a much more definite working basis for social betterment. In the medical field as well, such records become the most valuable guide in evolving the best methods of procedure. The second report of this service will summarize the course pursued in the several classifications of injuries.

(To be concluded)

Sensible Shoe for Feminine Wear

The kind of a shoe which American women should wear, but do not wear, has been decided upon in joint conferences of shoe manufacturers with members of the National Board of the Young Women's Christian Associations, and a publicity campaign has been instituted by the National Board among the 400,000 members of the Association, to popularize sensible shoes for feminine wear.

The Paris *Temps* announces that an organization has been formed with the object of establishing permanent relations between American and French physicians and surgeons.

MEDICAL SERVICE FOR EMPLOYEES AND FAMILIES AT THE ENDICOTT JOHNSON CORPORATION

BY L. D. FOSBURG, M.D., CHIEF OF MEDICAL DEPARTMENT, ENDICOTT JOHNSON CORPORATION, ENDICOTT, NEW YORK

THIE Endicott Johnson medical department of Endicott, N. Y., was started in January, 1917. The purpose of this undertaking was to look after accident and sick calls of employees during working hours. As the work rapidly increased, a nurse was soon added to the force. In May of the same year the work had outgrown its quarters and another doctor joined the staff. At this time the Endicott Johnson Corporation decided to extend the service and treat not only employees but their families also. In September the work increased to such an extent that still another was added to the force. In March, 1918, the office space became too small and larger quarters were secured. There are now three offices, the drug room, a laboratory, and a commodious waiting room.

The department at present consists of two branches. One is the surgical division at our tannery, where dressings are made and accidents attended. This branch is making about three to four hundred dressings weekly. Here also an x-ray room is maintained for minor cases.

Six Physicians on Staff

The medical department proper is situated convenient to the company's buildings. Here are treated all kinds of cases. The present force comprises six whole-time doctors, two office nurses, and three visiting nurses. The six physicians include four men and two women.

In taking up work of this kind there have been many difficult problems, as there have been no precedents to follow. During the six months between May 1, 1918, and November 1, 1918, the medical department in Endicott made a total of 11,442 office calls, 12,212 house calls, and 931 night calls.

It is the aim of the company in establishing this department to give employees and their families better service at no expense to themselves. The company furnishes the best of equipment. In two years time the service has been increased from one to seven doctors and five nurses, and today there are some ten thousand patients.

Do the people appreciate this service? In the main, yes. We get some very nice letters and words of commendation. They use the service freely. Many calls made result from a scratch of a pin and the like, and we encourage this because

we know it prevents infection. Many cases of constipation are treated because the people can come and get their medicine free, whereas, if they had to buy it, they would wait and appendicitis, obstruction, or other serious difficulties would follow. By having a doctor in constant attend-



This man did not neglect a sore thumb, but came to the medical department for attention.

ance infections have been cut to a very small percentage and by working with the health officers and school physician we are cutting down the infectious diseases. That is why we are treating the diseases of school children and removing tonsils. It is the policy of the company that employees shall be carefully attended by the medical department and that the school children shall be taken care of whether of the Endicott Johnson family or not. It is the custom to do all dressings, culture work, and tonsil and adenoids treatments free of charge. The school physician or school nurse has only to make out a slip and send the pupil to the office of the medical department, where they get the best of attention.

To all who are in distress or in poor circumstances the services of the medical staff are offered.

To provide for the needy in sickness and death, the Endicott Johnson Relief Department was organized. Those employees who desire may, at the small expense of ten cents per week, to which the company adds an equal amount, draw \$10.50 a week for forty-eight days each year. In extreme cases this may be extended to ninety-six days.

In Johnson City, six miles away, are located the main factories of Endicott Johnson. All tanning and fine-welt shoes are manufactured in Endicott. The Johnson City Medical Department is under construction at present. Here is located a hospital to which most of our serious cases are sent. Sickness whether medical or surgical is given free treatment at this hospital to those who are unable to pay.

We take all kinds of cases—genito-urinary, surgical, medical, or obstetrical specialties. We attend all employees and families, those in need, and any emergency we are able to meet. The corporation pays regular salaries to doctors and nurses, furnishes medicine, transportation, offices, and all necessary equipment to do the work at no expense to the employee. Free ambulance service is extended to everyone.

During last year we attended one hundred and ninety-three mothers in confinement, and this work is increasing. As far as possible we make the usual urinary examinations; the visiting nurses make regular calls before, during, and after, parturition. We feel that some day these same babies are going to make the shoes for Endicott Johnson. If we can begin training them in the right way, and help them to keep healthy, they are going to be better working men and women.

We send our tuberculous cases either to Ideal Rest, a sanatorium in which the company is interested, or advanced cases to the County Hospital for Tuberculosis.

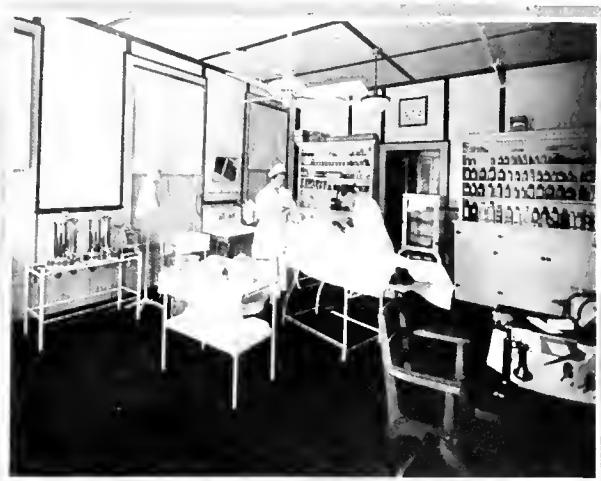
We have plans for a Contagious Hospital to care for those cases where the patient is a roomer or boarder and has no one to look after or care for him. We also have a resting place for those who are convalescing from severe illness or operation.



A plentiful stock of medical and surgical supplies is always kept on hand at the dispensaries, laboratories, and hospitals of the Endicott-Johnson medical service.

In the surgical department we have been unusually busy during the period of our entrance into the war. One surgeon has done practically all the operations. Since the close of the war one surgeon has returned and our doctor in specialties of the eye, ear, nose and throat.

The major operations included hernias, appendices, gallstones, mastoids, peritonitis, pus tubes, amputations, etc., numbering 334.



First aid at the Endicott-Johnson Factory.

Since April 15, 1919, 100 tonsil and adenoid operations have been done in the specialists department.

Contagion has been light during the past year, 177 cases being attended by us, the cases being as follows: measles, 77; whooping cough, 12; scarlet fever, 2; chicken-pox, 14; diphtheria, 8; and mumps, 64.

We have examined and sent to "Ideal Rest" 15 cases of pulmonary tuberculosis, of which number all but one have returned much improved in health and the disease has remained inactive. One case developed tuberculous peritonitis and succumbed to that disease.

The employees number about 5,000 and we have cards for about 9,000 patients from this number and their families. We average about ten new applicants daily. The latest announcement is that we are to draw up plans for a central medical department building to house our entire medical and surgical department. A maternity ward will be provided.

New Building for Medical Department

I have not, in this article, discussed minor accidents, etc., nor the major operations, of which we have several every week.

The Endicott Johnson buildings consist of five tanneries, sales building, shoe factory, fire prevention, mechanical department, carpenter shop,

paint shop, and others. The company employs workers of many nationalities. Among them are Americans, Italians, Russians, Poles, Slavs, Greeks, Lithuanians, Swedes, and others. In so mixed an assembly of workers it naturally ensues that we must have many and varied attractions. In this line it has been the policy of Mr. Johnson to provide a mutual recreation place for the people to gather. In our very midst has been



Employees report by appointment for examination or treatment by the physicians and nurses of the Endicott-Johnson medical staff.

provided a beautiful park for the employees and their families and the surrounding neighborhood. Ideal Park is situated along the Susquehanna River and is generally used by the country-side for family and society picnics.

Park Provides Wholesome Amusement

Playgrounds, merry-go-arounds, and band concerts are found, and here Sousa's Band and Marine Band appeared last year free of charge. There are provided a half-mile track for matinee races, foot races, a baseball diamond, football field, and athletic club house for boxing and club meetings, a swimming pool, dancing pavilion, stables for training horses, lunch pavilions and cook houses, and a bathhouse now under construction to accommodate at least ten thousand bathers.

In this park are about thirty carefully guarded forced wells and a pumping station, which supply Endicott and Union with pure water. The announcement was lately made that there will be a modern gymnasium added to the park, to cost \$100,000.

"Mere intellectual appreciation of the merits of a question has little value unless there is willingness to contribute time and labor to the development of the purpose involved. One is culture; the other morality."—William C. Braisted.—MODERN MEDICINE, May, 1919.

INDUSTRIAL PHYSICIANS AND SURGEONS

The tentative program of the Ninth Conference of Industrial Physicians and Surgeons, to be held in Harrisburg, Pa., September 22, 1919, has been announced as follows:

Morning Session 9:00 A. M.

Address of Welcome: Hon. Clifford B. Connelly, commissioner, Department of Labor and Industry of Pennsylvania.

"The Medical Profession and the New Workmen's Compensation Act of Pennsylvania"; Dr. Frederick L. Van Steeple, president, Pennsylvania State Medical Society, Olyphant, Pa.

"The Sanitary Disposal of Sewage and Trade Waste, and the Consideration of what Constitutes a Proper and Adequate Drinking Water Supply"; Col. Edward Martin, commissioner of health, Commonwealth of Pennsylvania.

"Recent Personal Experiences in the Present Methods in Force in Germany, England and France for the Conservation of the Worker"; Dr. Alice Hamilton, United States Bureau of Labor Statistics, Washington, D. C.

Afternoon Session 2:00 P. M.

Symposium on Health Insurance:
"State Medicine or Health Insurance—Which Would Be Best for the Medical Profession?"—for the General Public?"; Col. Benjamin S. Warren, assistant Surgeon General, United States Public Health Service, Washington, D. C.

"Have the Medical Profession Adequately Met Their Responsibilities?"—Dr. George E. Tucker, Aetna Life Insurance Co., Hartford, Conn.

"The Cost of an Adequate Medical Service Under Health Insurance"; John A. Lipp, managing editor, MODERN MEDICINE, Chicago, Ill.

DUST HAZARD IN ABRASIVE INDUSTRY

"The conviction is growing among students of industrial hygiene that the incidence of tuberculosis among the workers in dusty trades is one of the gravest problems in this field," comments C.-E. A. Winslow, professor of public health, Yale Medical School, and consultant in industrial hygiene, United States Public Health Service, in a paper on the dust in abrasive industry, which is published in *Public Health Reports*, Vol. 34, No. 22.

Professor Winslow offers a critical review of two studies on tuberculosis in industry; one conducted by the United States Bureau of Census in 1908 and 1909, and the other by F. L. Hoffman for the Prudential Life Insurance Company. He discloses a discrepancy of 25 to 50 per cent in ratios for the incidents of disease by industries, the statistics of the Prudential survey being from one-fourth to one-half higher than those for the registration area.

As both studies are parallel in the showing of tuberculosis for different classes of occupations and age periods, the two sets of figures check each other closely when allowance is made for the high ratio found in the Prudential Company's investigation.

The worst sufferers are found among the trades in which are grinders and other workers with abrasive materials. Professor Winslow notes, however, that little attention has been given to the workers engaged in the manufacture of these same abrasive materials.

The following pointed conclusion indicates the seriousness of the disease problem in dusty trades: "In general the data show quite clearly that exposure to mineral and metallic dusts, as among brass workers, marble and stone cutters, and polishers, is accompanied by tuberculosis ratios at least one-third greater than the ratio for all occupied males, and at some age periods more than twice as great."

Statistical information and comment is furnished of the investigations in three factories using abrasive materials. Trades of which studies have been made include, brick, tile, and terra cotta workers; iron and steel workers; plasterers; molders; paper hangers, painters, glaziers and varnishers; tinplate and tinware workers; jewelers, glass-blowers and other glassworkers; tool and instrument makers; potters, marble and stone cutters; brass workers; compositors and typesetters; pressmen, printers, lithographers and pressmen; polishers.

OCCUPATIONAL DISEASES UNDER WORKMEN'S COMPENSATION LAWS

BY CARL HOOKSTADT, BUREAU OF LABOR STATISTICS, UNITED STATES DEPARTMENT OF LABOR, WASHINGTON, D. C.

MOST of the workmen's compensation laws in the United States limit their benefits to "accidental" injuries—those due to an unexpected or unforeseen event, happening suddenly or violently, and producing at the time objective symptoms of an injury. Usually some variation of the word "accident," or a word of similar import, is used in the statute defining a compensable injury. Under these definitions occupational diseases, especially the slowly developing ones, are excluded from the compensation acts. A few of the states, however, use the term "injuries" or "personal injuries." Apparently it was the intention of the legislature in these states to include occupational diseases when they substituted the word "injury" for the British term "injury by accident." Several of the state compensation commissions interpreted the law in this light but, with the single exception of Massachusetts, these commissions have been overruled by the courts.

The present status as regards compensation for industrial diseases in the various countries of the world is as follows: In Great Britain and most of her colonies, especially the provinces of Canada, certain enumerated occupational diseases are compensable under the compensation acts. In most of the other foreign countries industrial diseases are not compensable under the accident insurance laws, but are taken care of through sickness and invalidity insurance systems. In the United States, however, with six noteworthy exceptions, occupational diseases are not only excluded from the operation of the various compensation acts but, because of the absence of health and invalidity insurance laws, receive no consideration whatever.

Diseases Subject to Compensation

Of the forty-four workmen's compensation jurisdictions in the United States, only six (California, Connecticut, Hawaii, Massachusetts, Wis-

Physical impairment produced by slow development of a disease that has its origin in the processes of an industrial occupation, is no less an injury than the disability caused by "accident."

This broad interpretation of the term "injury" is recognized in Great Britain and in other foreign countries. But in this country only six states and the Federal Government provide compensation for occupational diseases.

State compensation laws which do not accord full recognition to this principle need enlargement to include occupational diseases.

consin, and the Federal Government) at present provide compensation for occupational diseases. In Massachusetts and the United States this inclusion has been effected through the rulings of the commission and courts, whereas in the other jurisdictions it has been brought about by statutory enactment. The Wisconsin law is patterned after the British act and enumerates twenty specific industrial diseases which shall

be compensable under the act. These include lead poisoning, anthrax, mercury poisoning, phosphorus poisoning, arsenic poisoning, ankylosis, nystagmus, glanders, compressed air illness, several miners' diseases, and a number of diseases due to poisonous dusts, gases, and fumes. The other laws do not limit the scope but include all occupational diseases arising out of and in the course of employment. The Connecticut act includes all industrial diseases which are due to "causes peculiar to the occupation and which are not of a contagious, communicable, or mental nature." In the other thirty-eight compensation laws occupational diseases are excluded, in theory at least, from the operation of the compensation acts. This exclusion has been brought about by limiting the scope of the law to injuries by "accident," by adverse rulings of the courts and commissions, and by express provisions in the compensation laws themselves.

What Is Occupational Disease?

What constitutes an "occupational disease" under the various compensation laws? This is a question perennially confronting the courts and commissions in the United States. In those states in which industrial diseases are supposed to be excluded compensation benefits have been awarded for anthrax, dermatitis, arsenic poisoning, fume poisoning, occupational neuritis, housemaid's knee, and so on. In each case, however, the court or commission always took pains to point out that the particular injury in question was

compensable because it was not an "occupational disease." Compensation was granted not because it was a disease but because it satisfied in other respects the requirements of a compensable injury as defined by the statute or as interpreted by the court. When, then, is an occupational disease not an occupational disease?

Occupational diseases may be classified according to cause and nature of injury, as follows:

1. Diseases due to gradual absorption of poisons (lead poisoning).
2. Diseases in which the poison or germ enters the system through a break in the skin (anthrax).
3. Skin affections from acids or other irritants (eczema, dermatitis).
4. Diseases due to fumes or dusts entering the system through respiratory organs (tuberculosis, gas poisoning).
5. Diseases due to vibrations or constant use of particular members (neuritis, telegrapher's cramp, housemaid's knee).
6. Miscellaneous diseases (caisson disease, miner's nystagmus).

Non-Occupational Diseases Compensated

There are, however, two additional classes of diseases, non-occupational in character, for which compensation is usually granted: (1) Those diseases, such as typhoid fever, erysipelas, sun stroke, pneumonia, and ivy poisoning, which arise out of and are approximately caused by the employment. These diseases, to be compensable, however, must have had their origin in the employment and must be definitely traceable to it. (2) Those diseases which either result from an accident or are aggravated, accelerated, or developed by the accident. In these cases compensation is awarded not for the disease *per se* but for the results of the accident. Had the accident not occurred the disease would presumably never have developed; consequently the resulting disability is justly attributable to the accident. In this connection the Pennsylvania Workmen's Compensation Board said:

The workmen's compensation act does not prescribe any standard of health or physical condition to which the workman of the state must conform to qualify for compensation, nor does it imply a warranty on the employee's part that he is free from latent disease or physical defect which may develop into serious injury if excited into activity through his exertions in the course of his employment.¹

In theory, therefore, when an employer employs a workman he accepts him as he is and becomes liable for injuries in which the employee's pre-existing disease or defect was partly responsible.

Of the six classes of occupational diseases enumerated above compensation has been uni-

formly denied for the first class, i. e., for those diseases which have developed gradually and which are inherent in the employment. No state, except those² which compensate for all occupational diseases, has awarded compensation for lead poisoning. As regards the other classes of diseases, there has been a lack of uniformity in the practices of the courts and commissions of the several states. Numerous diverse and contradictory rulings have been made in what appear to have been identical or similar cases. For example, compensation for occupational neuritis has been awarded in one state and denied in another; a workman contracting anthrax has been granted compensation in a third state and denied compensation in a fourth; and so on.

Principles of Compensation

However, while the practices among the several state commissions and courts vary, the legal theories and principles upon which their decisions are based have been remarkably uniform. Compensation for occupational diseases has been usually granted if one or more or all of the following conditions were present: (1) if the disease resulted in violence to the physical structure of the body, i. e., if it was traumatic or produced a lesion; (2) if the injury occurred unexpectedly or not in the usual course of events; (3) if the injury can be traced to a definite time and place in the employment; and (4) if the injury was not due to a known and inherent risk of the occupation; or, even if inherent in the occupation, if the employer had neglected to provide reasonable safeguards which would presumably have prevented the injury.

The guiding principle adopted by most of the courts and commissions in occupational-disease cases is stated by the Pennsylvania Workmen's Compensation Board in awarding compensation for dermatitis due to the presence of poison in hides handled by the employee as follows:

Where injuries received in the course of employment are of intraceable inception and gradual and insidious growth and can not be traced to having been received at some certain time, and in which there is no sudden or violent change in the condition of the physical structure of the body, they must be regarded as the results of an occupational disease. However, if the disease can be traced to some certain time when there was a sudden or violent change in the condition of the physical structure of the body, as, for instance, where poisonous gases were inhaled which damage the physical structure of the body, it is an accident within the workmen's compensation act of 1915, and is compensable.³

¹Smith v. Pittsburgh Coal Co., Pennsylvania Workmen's Compensation Board decisions for 1916, p. 63.

²California, Connecticut, Hawaii, Massachusetts, Wisconsin, and the Federal Government.

³Roller v. Drueding Bros., Pennsylvania Workmen's Compensation Board decisions for 1916, p. 86.

The following list shows the various classes of occupational diseases for which compensation has been awarded in the several states. This list is by no means complete nor are the states enumerated the only ones in which the specified occupational diseases have been compensated:

ANTHRAX

Anthrax contracted through chaps or cracks on the back of the hands of a workman while handling hides (New York).

Anthrax contracted by a wool sorter through an abrasion on his neck (Pennsylvania).

ARSENIC POISONING

Acute arsenical poisoning from inhaling fumes from spelter furnace (Illinois).

GAS, FUMES, AND DUSTS

Gas poisoning resulting in cerebral hemorrhage from close proximity to gas flame (Illinois).

Breathing of poisonous gases which had accumulated by reason of insufficient ventilation (New York).

Miliary tuberculosis following inhalation of gas fumes due to an explosion (Wisconsin).

Infection of throat due to inhalation of dust from dry hides by reason of poor ventilation (Michigan).

Involuntary inhalation of gas fumes caused by explosion (Pennsylvania).

Inhalation of gas fumes from salamanders used to heat workplace (Minnesota).

Inhalation of poisonous fumes while heating bucket of paint in an insufficiently ventilated room (Ohio).

SKIN DISEASES

Dermatitis due to fortuitous presence of poison in hides handled by workman (Pennsylvania).

Abrasions and irritation of skin from acids in handling hides in tannery (Wisconsin).

VIBRATIONS OR CONSTANT USE OF PARTICULAR MEMBERS

Traumatic peripheral neuritis due to constant vibration of punch press (Illinois).

Housemaid's knee contracted by a plumber (Connecticut).

NONOCCUPATIONAL DISEASES

Typhoid fever contracted from impure drinking water furnished by employer (Wisconsin).

Erysipelas contracted from frostbitten nose (Connecticut).

Pleurisy and pulmonary tuberculosis contracted from wetting received by jumping in river in course of employment (New York).

Nephritis and disability contracted by becoming wet from flushing hot pulp from basement of paper mill (Indiana).

Ivy poisoning of railroad employee while mowing grass on right of way (New York).

It is interesting to note the paradoxical position in which the courts and compensation commissions have placed themselves. Workmen's compensation laws have been enacted in the vague belief that industrial accidents were inevitable and constituted a permanent and integral part of industrial life. The one clinching argument constantly used by proponents of compensation laws has been that a large proportion of industrial accidents were due to the inherent risk of the in-

dustry, and consequently the employers' liability system based upon negligence was no longer applicable. These same reasons, formerly advanced for accident compensation laws, are now used by the courts and commissions against compensation for occupational diseases. In accordance with their interpretation of the probable legislative intent of the statute, compensation for such diseases is denied if they are naturally inherent in or incidental to the employment and granted if their occurrence is sudden or accidental. In actual practice and as a matter of simple justice, however, commissions and courts undoubtedly feel that an employee who contracts an occupational disease is just as much entitled to compensation as one who sustains the loss of an arm. Consequently in their decisions under the law they have no doubt been influenced by their desire to remedy so far as possible the economic injustice of the statutes.

Prevalence of Occupational Diseases

The failure to include occupational diseases in the early American compensation acts was probably due, in part at least, to the lack of information as to their prevalence. It was also deemed inadvisable to burden the employer unduly. Even at present there exists no reliable statistical data showing the annual number of industrial diseases in the United States. Numerous investigations of the occupational-disease hazards of particular industries have been made, a number of which have been published by the United States Bureau of Labor Statistics. The morbidity rates for lead poisoning in certain trades and industries have been especially high. Some idea of the prevalence of occupational diseases, however, may be obtained from the Massachusetts statistics. For the two years ending June 30, 1917, there were reported to the Massachusetts Industrial Accident Board 2,385 occupational diseases which resulted in loss of time; 42 of these were fatal. The 1,351 nonfatal diseases reported during the year 1915-16 resulted in 31,333 days lost time, or an average of 23 days per case.

Massachusetts also has a law requiring certain specified occupational diseases to be reported to the State board of labor and industries. Under this law there were reported to the Massachusetts board during the three-year period 1915-1917 the following occupational diseases (Table I):

Occupational Diseases in Foreign Countries

Occupational diseases have been compensable under the workmen's compensation act of Great Britain since 1906. The law as amended that year provided that certain occupational dis-

eases enumerated in the act should be compensable if they were due to the nature of any employment in which the workman was employed at any time within one year previous to the date of disability or suspension. Compensation shall be recoverable in the first instance from the last employer. The latter, however, may recover from other employers whose employment had within the year contributed to the contraction of the disease. The compensable occupational diseases specified in the act are anthrax, lead poisoning, mercury poisoning, phosphorus poisoning, arsenic poisoning, and ankylostomiasis (miner's hookworm).

The Secretary of State for the Home Office was authorized to extend the provisions of the act to other diseases and processes. In accordance with this authority the scope of the act as regards occupational diseases has since then been considerably increased. In 1907 (order of May 22) sixteen new diseases were added to the original list. These included nystagmus, glanders, compressed-air illness, several miner's diseases, and a number of diseases caused by poisonous fumes and acids. The original scope relative to lead and mercury poisoning was also enlarged. Cataract in glassworkers and telegrapher's cramp were added in 1908 (order of December 2); writer's cramp in 1913 (order of July 30); dope poisoning in aircraft production in 1915 (order of July 7); and poisoning by dinitrophenol and tetrachlorethane in 1918 (order of February 28).

Compensation for dermatitis, ulceration of the skin, and ulceration of the mucous membrane of the nose and mouth, produced by dusts and liquids, is not allowed if the employee is disabled only for employment in the process in which the disease was contracted. Compensation for cataract in glassworkers is limited to not more than six months, and to not more than four months unless an operation is had. Compensation for writer's cramp is limited to a period of twelve months.

The number of occupational disease cases contracted and compensated in 1914 under the British workmen's compensation act is shown in Table No. II.

Of the total of 6,061 cases of occupational disease shown in Table No. II, 5,547, or over 91 per cent, occurred in the mining industries.

The importance of occupational diseases as compared with industrial accidents may be seen from the following facts: The total number of industrial accidents in Great Britain in 1914 was 400,622, of which 4,216 were fatal and 396,406 were nonfatal. The total amount of compensation paid out in 1914 on account of industrial accidents was £3,275,711 (\$15,941,247), of which

TABLE NO. I
NUMBER OF OCCUPATIONAL DISEASES REPORTED UNDER MASSACHUSETTS COMPENSATION LAW IN THREE-YEAR PERIOD OF 1915-17.

Occupational disease	Total number reported	Fatal cases reported
Anthrax	82	13
Benzol poisoning	8	5
Brass poisoning	18	..
Caisson disease	31	1
Cigar neurosis	3	..
Amyl acetate	2	..
Dermatitis	14	..
Fume and gas poisoning	49	13
Lead poisoning	296	2
Miscellaneous	9	1
Total	512	35

TABLE NO. II
NUMBER OF OCCUPATIONAL DISEASE CASES CONTRACTED AND COMPENSATED IN 1914 UNDER WORKMEN'S COMPENSATION ACT OF GREAT BRITAIN¹

Occupational disease	Number compensated
Anthrax	36
Lead poisoning	344
Mercury poisoning	6
Phosphorus poisoning .....	..
Arsenic poisoning .....	..
Ankylostomiasis	4
Benzine derivatives poisoning	19
Carbon-bisulphid poisoning	3
Nitrous fume poisoning	3
Nickel carbonyl poisoning .....	..
African boxwood poisoning .....	..
Chrome ulceration	28
Eczematous ulceration of skin	46
Epitheliomatous cancer	19
Serotal epithelioma .....	..
Nystagmus	2,775
Glanders .....	..
Compressed air illness	1
Miner's beat hand	817
Miner's beat knee	1,609
Miner's beat elbow	165
Inflammation of wrist joint of miners	181
Cataract in glassworkers	4
Telegrapher's cramp .....	..
Writer's cramp	1
Total	6,061

£672,633 (\$3,273,368) was paid out for fatal cases and £2,603,078 (\$12,667,879) for nonfatal cases. The total amount paid out on account of occupational diseases during the same period was £189,650 (\$922,931), of which £7,099 (\$34,547) was paid out for fatal cases and £182,551 (\$888,384) for nonfatal cases. The amount paid out on account of occupational diseases during 1914 was therefore 5.8 per cent of the amount paid out for industrial accidents; whereas the total number of

¹Statistics of compensation under the workmen's compensation act during the year 1914.

occupational diseases contracted during 1914 was 1.5 per cent of the total number of industrial accidents sustained during the same period.

In their treatment of occupational diseases the Canadian provinces have followed in the footsteps of Great Britain. Nova Scotia, Manitoba, and British Columbia adopted verbatim the occupational disease schedule in the British act of 1906. Ontario and Alberta added miner's phthisis to the original list. New Brunswick also copied the British law but did not adopt the schedule. Instead the New Brunswick act confers discretionary power upon the workmen's compensation board to declare what occupational diseases and processes shall be covered by the compensation law. Quebec and Saskatchewan are the only provinces of the Dominion which have thus far failed to provide compensation for industrial diseases.

Of the other foreign countries a few, including Argentina, Brazil, New South Wales, Switzerland, and the Union of South Africa, specifically award compensation for occupational diseases; but in a majority of these countries such diseases are excluded from the operation of the accident insurance law. This does not mean, however, that industrial diseases are not compensated. In most of the European countries they are taken care of through compulsory sickness and invalidity insurance systems although there seems to be a tendency in some of these countries to put occupational diseases under the accident insurance laws.

INDUSTRIAL CASUALTIES IN PENNSYLVANIA REACH HUGE FIGURE

A report of three years' administration of the Workmen's Compensation Act of Pennsylvania, submitted by Lee S. Solomon, secretary, contains the following statement:

"A grand total of 668,340 accidents in this state in three years shows, at a glance, that the losses in industry in Pennsylvania make fair comparison with the casualty lists of a military army in field service. While it is true that a great portion of the accidents reported were of a minor nature, and did not even fall beyond the two weeks waiting period of the compensation law, because of the effective medical service provided by the Act, yet little or no progress has been made towards the prevention of fatalities."

The deaths occurring in 1916, 1917, and 1918, numbered 9,143, reflecting to some degree the tension under which industry operated during the war.

The sum expended for relief of victims includes an item of \$3,138,014 which was paid in fatal cases, and the burden of cost shows the following expenditures: exempted companies, \$2,002,239; insurance companies, \$869,791; State Workmen's Insurance Fund, \$265,983. There was \$9,158,833 expended in the relief of disability cases in three years, this cost being carried as follows: exempted companies, \$4,322,944; insurance companies, \$4,436,108; State Workmen's Insurance Fund, \$399,780.

HEALTH WORK FOR WHITLEY COUNCILS

About a year ago the Whitley Councils of the Potteries and Printers set up a joint health committee which sanctioned an experimental scheme for regular medical observation and research in industry. The experiment, described by Mr. E. Halford Ross in a lecture delivered on Tuesday last before the Industrial Reconstruction Council, was made in two large printing works, where the employees were informed by both their employer and the secretary of the trade-unions that a doctor would attend periodically to advise the workers on health matters. As a result many came forward and asked advice. Observations were made while work was in progress and much was done to show employees how they might work under better conditions. In addition, numerous cases of disability were discovered and remedied and the experiment was considered to have been most successful. Certain researches were done concerning fatigue, hours of work, the provision of seats, and the advantages of welfare work generally. It was discovered that the health committee of each industry is the best means of carrying out this work. Each industry differs; each has its own requirements. It is, therefore, much better for each industry to undertake its own welfare matters than to leave it entirely to any Government department. This experiment suggests that further valuable research in industrial medicine might be carried out on a larger scale under similar conditions. Sufficient work has already been done in London during the last two and a half years to indicate some of the lines along which research should be pursued. Catarrh, bronchitis, and chronic cough are the most common obvious ailments which affect the workers, and it is very rare to find a large office without somebody in it suffering from a "cold." It is quite certain that a considerable sum of money is lost in London every week owing to the reduction of output caused by these complaints, in addition to the wages paid during sickness. It might quite possibly be demonstrable by experiment that economy would be effected if workers suffering in the early stages of catarrh were persuaded to stay at home until they recovered. Anaemia is also of frequent occurrence among the young women and girl workers, and handicaps their work greatly. Out of several hundred employees examined in three large clothing factories 63 per cent of the girls were found suffering from anaemia. This common disease can be easily prevented if taken at once when it appears. If left until well advanced each case may require months of treatment. Its prevention is a matter of education, and a little medical advice to parents in childhood will stop much of this disabling affection. Here is a matter which an industrial medical service could take up at once, and in which, working in conjunction with the School of Medical Service, it would achieve wonders in a very short space of time. Anaemia has a most distracting effect on work, and may last for years, producing far-reaching results in motherhood. Again, from work that has been carried out in connection with munition works during the war it appears probable that improper feeding has been a considerable factor in the production of fatigue, and that the short, hurried, and scrambled midday meal, accompanied by the discomfort of waiting in queues and the curtailment of rest, has resulted in a diminution of output. These questions are for scientific study rather than for political speculation, and under the aegis of the Whitley Councils medical men might well find an opportunity for impartial observation in a sympathetic environment.

AN INDUSTRIAL UTOPIA

DIVIDENDS FROM HEALTH-BUILDING

Attention to the well-being of employees in working hours and care of employees or members of their families during sickness promotes stability in the organization of Montgomery Ward & Company and in the homes of their workers. The medical service is a producing department. Some of the products are:

- Healthier girls and happy mothers.*
- Less sickness and better workmen.*
- Home hygiene and contented workers.*
- Good housekeeping and thrifty wives.*
- Regular habits and steadier work.*
- Less time-off and better morale.*

SEVEN YEARS OF INDUSTRIAL MEDICAL SERVICE FOR MONTGOMERY WARD EMPLOYEES

By JEANNETTE D. KING, MEDICAL DEPARTMENT, MONTGOMERY WARD & COMPANY, CHICAGO, ILL.

Does it look like a modern Utopia? It is "Warrenville," the haven of health where girls are sent for a rest when signs of fatigue.

IN talking with a friend the other day about labor conditions, their causes and their cure, I told him I thought the solution lay in a greater solidarity between employer and employee; an understanding, on the part of each of the other's needs. When I had finished my rather impassioned cure-all he said: "Yes, your solution would solve, all right, but it will never be done this side of Utopia." As I was only describing the working out of the problem at our plant, I am taking for my paper the title which his comment suggested.

For the past fifteen years Montgomery Ward & Company have had a doctor and a nurse in their plant, but it is only within the last seven years that the medical department has been organized and operated with as much system as any other department in the organization.

A Plan of Sickness Insurance

On July 1, 1912, there was a revolution. The old doctor who had listened to the pitiful tales of the employees and their families, and the nurse who gave them an occasional headache tablet when she was not too busy making herself a new gown, were obliged to step aside to make room for an up-to-date and efficient medical director and his force of wide-awake doctors and nurses. At that time, every employee automatically became a member of our Insurance Group which is still in effect and which is maintained by the com-

pany. This entitles every employee to free medical care in his home and in the hospital; in addition to this, the death benefit in connection with this insurance entitles the widow of one of our men to 25 per cent of his salary, to be paid weekly until she re-marries, and 20 per cent to each child until he is sixteen years of age. The beneficiary of an unmarried person receives one year's salary, to be paid at once, and in addition, \$100 for the burial.

Resident Physician at Plant

Dr. Frank Wieland, the medical director, does all of our surgery and is called in counsel by the other doctors. We have a resident physician who devotes the entire day to the work at the plant, an examining physician who spends several hours each day at the plant, and a physician who looks after the outside work.

Each department sends the names of all employees who are at home on account of illness, to the medical department, before nine o'clock each day. If such employee wishes the doctor to call, a doctor is sent the same day; if he does not, but fails to return to work on the second day, the visiting nurse makes the call. The visiting nurse also follows up all doctors' calls and gives bedside care when necessary.

All of our hospital cases are sent to the Hahnemann Hospital, and we find that they receive much better care than if we sent them to different



hospitals; the internes and nurses seem to take a personal interest in Montgomery Ward employees.

A most kindly feeling exists between the medical department and all of our employees, especially the foreign and the poorer classes. We make them feel that it is not a charity, but that they are entitled to our services.

Same Service to All

There is no royal road to health here. If Mike, down on the packing floor, requires an appendectomy, or any of our executives wishes to have an operation of any kind, they go to the same hospital, are operated upon by the same surgeon, have the same nurses, the same gas pains, and the only difference is that Mr. Executive usually returns to his home a day or two sooner than Mike, because Mike likes hospital care and the nurse's attention so much that he begs to remain until the end of his second week. In addition to furnishing the hospital care, we also pay for any special treatments which our medical director deems necessary, such as special nurses, massage, baths, osteopathy, vaccines, etc. We furnish artificial limbs and eyes, special shoes for deformed feet, crutches, etc., to our insurance members.

When a person seeks a position, he is given a physical examination; if he does not pass the examination, he is not employed, unless he has some defect that can be corrected. Decayed teeth must be taken care of as soon as possible. At the end of a year, he automatically becomes a member of our Insurance Group.

During the past two years, we have employed two girls who are stone blind; they are splendid typists and dictaphone operators, and do excellent work. We also have several cripples, many cardiac cases, and a good many deaf and dumb employees. Since we promise to pay all hospital and sanitorium bills, we must be very watchful of our people and not allow incipient cases of tuberculosis to become second- and third-stage cases before we do anything. How shall we find incipient cases is the question that comes to our mind. There are no chest findings, perhaps,—no cough, no night sweats,—but still the afflicted ones are below par. Then again, how will you compel a faithful employee who has worked for you for years, to come to you for examination? They won't do it; they think complaint has been made

about them, and they would rather leave than be subjected to an examination. We feel that we have solved the problem. In our institution we have a woman's club, composed of women from every department. Each member of this Club, as well as division managers, make it their business at all times to be on the alert for any person who is lagging in his work, or who is below par. The names are sent to us,—we look them over, and offer to put them on the malted milk list.

We serve an eight-ounce glass of malted milk between 9:30 and 10:30 o'clock in the morning and 2:00 and 3:00 o'clock in the afternoon; for we have found that at these times workers begin to lag, and this is a real refreshment which tides them over until meal-time. The vital nutritive elements of clean milk and select malted grain as supplied by Montgomery Ward & Company constitute a complete food with positive health giving qualities. Strength and energy are stored in every glass and it is so easily assimilated that it readily yields the maximum of stamina-creating power when used between meals. I find that many of our people, having been so greatly benefitted, have carried the good news home, and the entire family have acquired the habit. Should a person be unfortunate enough to be obliged to eat food which has been prepared by a cook ignorant of food values,—or poorly cooked food, we have



Summer at Warrenville. The large veranda extending around two sides of the house is used in summer as a sleeping porch by the girls from city homes who come here to rest and to repair their vitality.

the satisfaction of knowing that she will not die of starvation while in our employ. Each person on our malted milk list is weighed each month; if we find anyone losing weight, or not gaining, it is quite easy to persuade him to submit to an examination. If there are no chest findings, then we take an afternoon temperature and perhaps an x-ray. If there is no evidence of tuberculosis, then we send the girls to our country home at

Warrenville, Ill., which we own and operate. This home is located about twenty-five miles west of Chicago, and here we are prepared to take care of twenty girls at one time; these girls are not sick, but just tired, and need a rest.

It is amazing to learn how few people know what to do with a vacation. A great many look forward to spending their two weeks in cleaning house, or taking care of their sister's children while sister goes to the country; very few know that they should have an entire change of scene and a relaxation. By having this wonderful home, which is absolutely free to our employees, we have no trouble in persuading our girls to go to it. I sent a little Polish girl of eighteen out to Warrenville recently, who is the eldest of nine children. She had not been out of the city in all her life. While we were waiting for the train, I said to her, "Now I don't

want you to think that Warrenville is a big place with many attractions, for it is not; we haven't even a movie." She replied, "I haven't been to a movie for eight weeks; you see my friend takes me to the picture-show once a week, but he has been sick for eight weeks, and mother couldn't afford to let me go and pay my own way."

Now, I really admire mother for feeding and clothing nine children, in these days, with only three wage-earners in the family,—but I do feel sorry for little Antoinette too. Imagine the size of those eyes of hers when she is urged to take a second helping of chicken and all the real butter and milk she wants, and a large cut of cocoanut pie!

Rest Benefits Permanent

We have very few rules at Warrenville,—just as few as seem necessary to satisfactorily govern our community life there.

The house is quiet between one and three in the afternoon, when the girls undress and go to bed. Then they retire at 9:30 o'clock. They sleep on the porch, where we have canvas curtains in case of rain. We have listened patiently to such a variety of reasons why they cannot sleep in the night air when they are at home; but we have yet to hear the first complaint from anyone who has been at Warrenville. We have a tennis court and croquet, and a recreation room where they may dance. Last year was our first at Warrenville, and we found that the girls gained from five to

twenty-seven pounds in from two to eight weeks. In most cases, they retained their weight, so that those who went last year do not need to go this year. Not one of the thirty-three who were there had the influenza and none of them lost any time from work all winter and spring. Most of the girls had so much more "pep" that they were given better positions and were able to keep them. Does Warrenville pay? It certainly does. We



The dispensary at the Chicago plant of Montgomery Ward & Company.

have added to our quarters this year so that we are able to take care of twenty at a time instead of only ten.

In regard to our plant dispensary—we have a large waiting room, which is used by both dental and medical departments. In order to save time, no employee is admitted to the doctor, unless an appointment has been made, except in an emergency. We feel that every minute counts, and if we keep a man half-an-hour today, his supervisor will not be so willing to let him come tomorrow. We have a men's dispensary, a women's dispensary, two examining rooms, and two private offices. Then, we also have a girls' rest room, under the supervision of a nurse who takes care of minor ailments. In this room, we have comfortable cots, where anyone may lie down until she feels able to return to work. The nurse offers hot water bottles, makes a note of the time of the arrival of each, and if anyone spends too much time in bed, we investigate and relieve distress in any way possible. The nurse also keeps a supply of shoes, stockings and skirts for the use of the girls who may have been caught in the rain coming to work. The clothing is dried and made ready for the employee to wear home at night. A stock of umbrellas is also kept, to be loaned to anyone who neglected to bring one from home.

In our work we find much need for dentistry. Three years ago we installed a dental department. At present, we have six dentists giving part time.

They are all men who have been graduated from two to five years and who have their own practices. All dental work is done except orthodontia and x-ray; it is done at cost, and where an employee is able to pay for such work a certain amount is taken out of his pay each week. If he is not able to pay, then we take care of it through our welfare department. There is, therefore, no excuse for neglect of teeth on the part of anyone. Our dentists cooperate with our doctors, and we are able to do so much more good than if we had to depend on dental clinics where the quality of work is not known. Seventy-five per cent of our sicknesses are the result of infections in the teeth, and it is both convenient and satisfactory to have our own dentists, who examine the patients and report at once if there are any devitalized teeth where there is a possibility of infection. No time is lost in taking an x-ray, and we have the teeth taken care of at once instead of trying all sorts of rheumatism medicine and vaccines to effect a cure. We are working for the interest of the employer as well as for the employee, and it is to the interest of the former that a patient be made well just as quickly as possible. We feel that our dental department is invaluable; it is

is an employee or a member of an employee's family. She is often asked by young husbands to assist in bringing order out of chaos which the arrival of a new baby generally causes; she plans with the new housekeeper how to live within her income and directs the young mother regarding the baby; she is often able to persuade expectant mothers to keep away from midwives, and arranges for her care at the hospital without ex-



A library is operated in connection with the Educational Department, as a branch of the Chicago Public Library.

pense, when necessary,—and we feel that we have really accomplished something when the mother returns from the hospital with the new baby in her arms, singing the praises of up-to-date methods; we know that she is a harbinger of good in her community, and will help to teach her

poorer foreign friends and neighbors.

From our staff of welfare workers, there is always a responsible woman available to accompany any girl who has become involved in any difficulty, to a court-room; while she may not be able to accomplish anything personally, the moral support her presence gives to the girl is always most noticeable and well worth the effect, as fuller consideration of her case is generally given.

In our welfare department, there is a large, airy room, where the girls are permitted to dance, sing and enjoy recreation of various kinds during the noon-hour. On Fridays, in this room, we provide entertainment for all,—sometimes it is a lecture, sometimes a musicale, and often a lecture with stereopticon views.

In connection with the educational division, we



Rest room for women employees of Montgomery Ward & Company. Any girl may lie down if she feels ill and may remain until she feels able to return to work. A nurse is in attendance.

operated at very little expense to the firm and at very reasonable rates to the employees.

Although our welfare department is entirely separate from the medical department, we keep in close touch with each other. We employ a nurse who visits the families of the employees, makes calls in case of death, whether the deceased

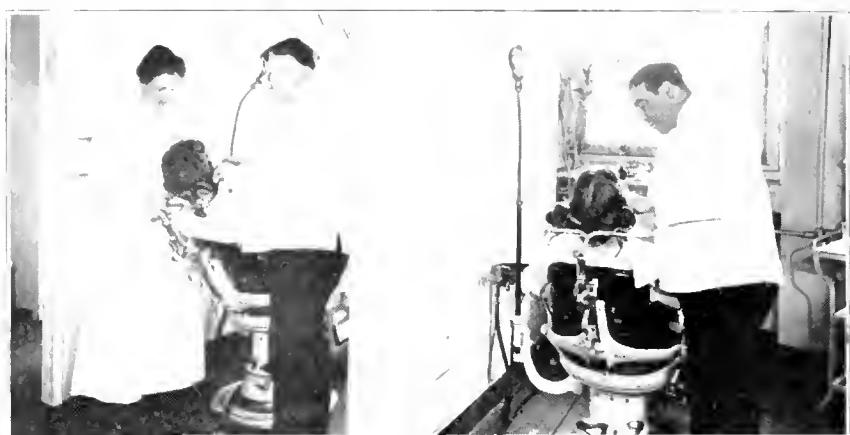
have a library, which is a branch of the Chicago Library. The city furnishes the books free; the company furnishes the room and a competent librarian who carefully selects the books for our shelves. A supply of approved technical books on business subjects, advertising, office management, scientific business management, etc., is always available, and our employees are encouraged to avail themselves of these opportunities for acquiring valuable knowledge. Similar libraries are maintained in our branch houses. At Chicago the circulation is about 5,000 books a month.

Another feature of our welfare work was the founding of the LaSalle Unit, an office force consisting entirely of colored women. September, 1918, marked the beginning of a unique experiment which opens to colored women an entirely new field of endeavor. Conceived under the stress of war-time labor conditions the Unit has now passed the experimental stage and bids fair to become permanent. The work done is part of the work of the Entry division and is entirely clerical in nature. The office force must be proficient in the operation of bookkeeping machines. Super-

vision lies with colored supervisors, two of whom are college women. The head supervisor is directly responsible to the manager of the Entry division for the proper performance of the work in this Unit. Practically none of the girls employed had any previous experience with office work or any knowledge of typewriters or other office machines. It was absolutely necessary to start it from the beginning. Progress has been

such as to prove the adaptability of colored girls for this kind of work and warrants the belief that the colored girl of the future, given training, will become as efficient as the colored girl of the past has been as a cook or housemaid.

The Unit has a large light office of its own. The girls enjoy practically the same advantages as the white girl. Wages are scaled so that after



A dental clinic under charge of experienced dentists is one of the indispensable features of the service.

a period of instruction each operator is paid according to her output. Thus each operator's wage depends entirely upon herself. They work eight hours a day (noon on Saturdays) with four ten-minute rest periods and forty minutes for lunch each day. Their meals are brought to them from the House refectionary and served at cost.

Free medical attention is given them. For recreation they have their own piano which during rest periods and lunch hour is never quiet. On the day of the House picnic the girls of the Unit had their own picnic which still furnishes a topic for conversation. That the girls appreciate this opportunity to engage in a class of work hitherto denied them and that they value the advantages and privileges which they enjoy is attested by the fact that when the call goes out for new help there are always more eager applicants than there are postions to be filled.

It is generally conceded that the plan as worked out in the past seven years so transcends in importance any consideration of cost that our schemes grow more ambitious every day. It will be quickly recognized that a large sum of money has been expended yearly by Montgomery Ward & Company for preventive and corrective meas-



This large, airy recreation room is open to the girls during noon-hours for dancing, singing, or other purposes. It is used also for concerts, lectures, and entertainments.

vision lies with colored supervisors, two of whom are college women. The head supervisor is directly responsible to the manager of the Entry division for the proper performance of the work in this Unit. Practically none of the girls employed had any previous experience with office work or any knowledge of typewriters or other office machines. It was absolutely necessary to start it from the beginning. Progress has been

ures, but our management thinks in terms of big ideas as well as big sums of money.

A "mere Utopian dream" do you still think? It will be most interesting to watch developments in the next seven years. Was it not Disraeli who said, "The impossible will be accomplished tomorrow?" Scientists "proved" the impossibility of flying,—but the Wright brothers flew, and so to me Utopia for our plant does not seem far distant.

SIMPLE HEALTH LITERATURE FOR EMPLOYEES

BY EDWIN A. HUNGER, ROCHESTER, N. Y.

[*How the Eastman Kodak Company drives home to its work-people ordinary health rules by means of health booklets and monthly bulletins.*]

Keep everlastingly at it, is one of the abiding maxims of Dr. G. L. Howe, physician in charge of the medical department of the Eastman Kodak Company, in his efforts to make the employees understand ordinary health rules and persuade them to take proper care of themselves. One of his most potent means of influencing the work-people is a simple little health bulletin which is published each month.

In this little publication—it seldom goes beyond 500 words—Dr. Howe takes some pertinent and timely health topic and in the simplest language possible tries to drive home precepts and advice that will help the employee keep his body in good order and therefore be steadier and more efficient in his work.

In the winter months grip and colds are prevalent and a topic relating to these may be chosen; similarly in summer such important subjects as "How to Keep Well in Summer," and "Typhoid Fever," have been dwelt upon in the bulletin. Then again, there are topics that are always of interest to workmen, such as the following, which have already been covered in the bulletin: "A Few Facts About Foods," "Some Popular Errors," "Importance of Attention to Small Injuries," "Mouth Hygiene," "Remedies for the Home," "Rest and Sleep," "Rupture," "Burns," etc. Records are kept of all illness among employees and quite frequently the prevalence of some ailment or disease at a certain time will also suggest a topic for the bulletin. For instance, recently it has been found that a number of men have been having boils; hence, in the near future the bulletin will appear with some useful information on the prevention and easy eradication of boils.

News Element in Health Booklet

However, the articles in the bulletin are "tied in" with some topic which at the time is very much in the minds of the people. In one of these articles recently published, for example, entitled, "Preparedness in the Body," the body is compared with one's country, the germs which cause blood poison being the enemy, the skin the first-line defense and the white blood cells the second line. In this article the readers are told that if the body is weak and unprepared and cannot resist the onslaught of the enemy, the germs, there is nothing but defeat which of course means death. The message with its parallel then so prominently in everybody's thoughts, undoubtedly went straight home with every employee who read it.

The bulletin is printed on a single sheet seven by six and a quarter inches and is folded once so that it has four pages of reading matter including the frontispiece. Eleven

thousand copies are printed each month and, owing to the simplicity of make-up, the cost is small (\$45 per issue) compared to the great amount of good that it does.

A profusely illustrated booklet entitled "Good Health and How to Keep It" has also been prepared by Doctor Howe and is freely distributed among the employees of the Eastman Kodak Company, a special point being made to hand one to each new employee immediately after the physical examination which he must undergo. This booklet is also printed in simple language so that any workman can understand it.

Photos Visualize Health Maxims

The illustrations are so chosen that the various health ideas can be easily visualized. For instance, to impress upon the mind of the reader that it is important to drink plenty of water every day one of the illustrations shows six glasses of water and underneath it is printed, "The Amount of Water You Should Drink Every Day." Another shows a toothbrush with the caption: "One of the Best Investments You Can Make for Twenty-five Cents." "Simple Foods Are Nourishing," "Types of Indigestible Foods," "Foods of Value in the Prevention of Constipation," "Frying the Worst Way to Cook Food," are titles of other illustrations.

Advantage is also taken of contrasting illustrations to put over a health lesson. Two of these side by side, one showing a set of bad teeth and the other one of good teeth with "What Can You Expect From Such Teeth as These?" and "These Teeth Can Chew Food Properly," printed underneath them tell a story with a message that makes one "sit up and take notice" as persons slantly inclined might want to say. The improper and proper way to walk are the subjects for other contrasting illustrations. Both front and back covers are attractively illustrated with outdoor sports subjects and at once give a pleasing tone to the booklet.

Health Booklet Replaces Almanac

The booklet is divided into eight short chapters with the following titles printed as rules: Rule 1—Eat the Proper Amount of Good, Nourishing Food; Rule 2—Breathe All the Fresh Air You Can at All Times; Rule 3—Get Some Form of Exercise Every Day; Rule 4—Get Sufficient Sleep Under the Proper Conditions; Rule 5—Keep the Body Clean at All Times; Rule 6—Be as Regular as Possible in All Your Habits; Rule 7—Be Temperate in All Things; Rule 8—Wear the Proper Clothing.

The booklet contains twenty-eight pages five by seven inches in size. It has proved very popular, so much so in fact that many of the workmen take them home and hang them up in convenient places by string just as people used to do with their almanacs so that they can always be readily referred to. Thus far, close to 25,000 copies have been printed and the demand for them seems to never let down.

"The same fight against preventable diseases that is made in cities should be made in the rural districts."—Governor Burnquist of Minnesota, Message to Minnesota Legislature.

Properly fitting shoes of correct shape with a straight inner edge are the most effective preventive of weakfoot, bunions, corns, callouses and painful joints, according to the United States Public Health Service. Except for paralysis, clubfoot and deformities resulting from injuries, most foot trouble is caused by improper shoes.

EMPLOYEES' HOSPITAL OF FAIRBANKS, MORSE & COMPANY

BY C. F. N. SCHRAM, M.D., SUPERINTENDENT, HOSPITAL
DEPARTMENT, BELOIT, WIS.*

OUR MOTTO FOR THE YEAR 1919

"Good, better, best,
"We shall not rest,
"Until our good is better,
"And our better, best."

Each year is proving more and more the value of the industrial physician and the industrial hospital. This realization by the executives of Fairbanks, Morse & Company finds expression in the construction of a new hospital at Beloit, Wis., providing about three times the space of the present Fairbanks-Morse Hospital. The new building will be opened this season.

The physician is no longer the "Company Doc" in the Fairbanks-Morse organization, even though that be his usual appellation; and the hospital is not the "first aid" room. It is not meant that the old time species of "Company Doc" is extinct, but hibernation has no place in the busy plant. The progressive industry to-day is demanding the same efficiency in its hospital department that it does in its production department.

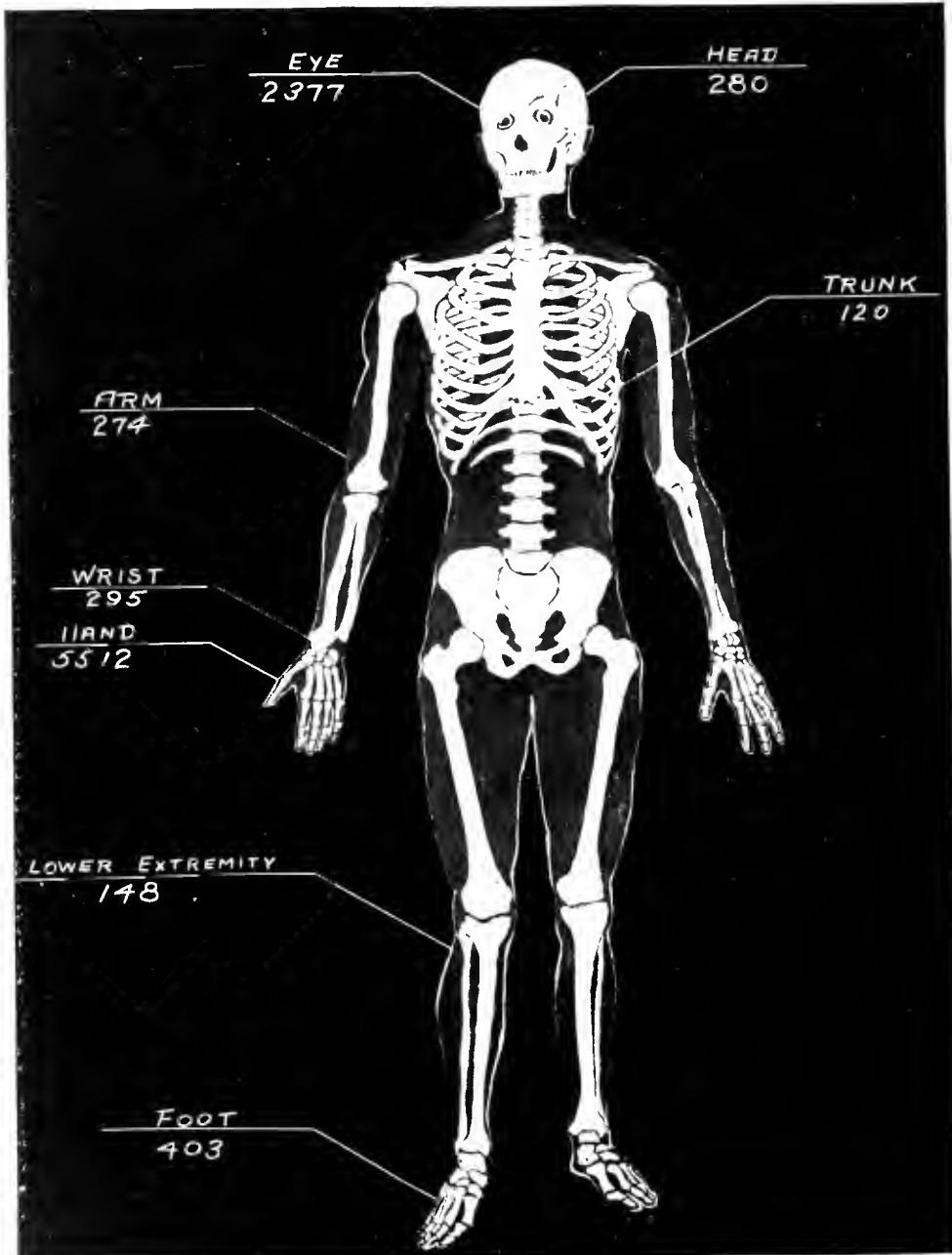
The Fairbanks-Morse Hospital serves 3,500 employees. To provide adequate hospital care for this number of employees requires a progressive hospital department. The Fairbanks-Morse Hospital looks forward to a widened field, while in the past it presents a record of service which speaks for itself.

The report of the Hospital Department for 1918 is graphically pictured in diagrams reproduced here. However, these do not make a complete report of the hospital, *i.e.*, the redressings and after-treatment of each injury is fully as important as the first treatment, and yet we can get it down in totals only (37,000) in round numbers—four times as many as the new cases. Much credit is due the nurses and recorder—in their pleasant

meetings with the injured day after day, and no injury gets well soon enough to suit the injured.

During the year 1918, a staff of one, full-time physician, two nurses and a recorder, took care of 9,409 injured employees. The redressings on these patients numbered 37,742. "Busy" was the word to use in describing the Shop Hospital at this plant for last year and yet men never had to wait for dressings.

We have no waiting room for our hospital and therefore the patient gets treated immediately upon his arrival. There are no appointments for redressings; the men coming in when most convenient for them. The hospital is



Injuries are here shown according to regional occurrence. These involved 9,409 accidents (1 fatalities), 37,742 dressings, and 4,084 cases of illness.

for the workers only and does not take care of cases of illnesses. Employees suffering from headache, constipation, sore throat, or catching colds, are given cor-

rective advice and prophylactic treatment. Four thousand and eighty-four such treatments were given last year. Whenever an employee feels that he must go home on account of sickness or if he has a temperature of 101 Fahrenheit he is sent home and advised to call his family physician.

Visiting Nursing Service for Employees

For the year 1918, 3,938 calls were made by the visiting nurse and physician. A visiting nurse driving an automobile makes calls on any case of illness of any employee or of any member of his family.

The sanitation of the shop under Mr. Lhotak, has received good care and he has ever been ready to cooperate in any way to keep the toilets' floors, telephones, and drinking fountains in a clean and sanitary condition.

In explanation of the diagrams, it may appear that they should show a large total of work done by the hospital; yet, we feel that our percentage of accidents is low when the hazardous work that our men are doing is taken into consideration—0.08 per cent—this being the daily average, or less than one to every one hundred shop employees. In considering only the lost-time accidents, there was less than one per four thousand shop employees.

The estimated expense per visit at the hospital was about thirteen cents, for 55,193 treatments and calls.

The assistance rendered our employees and their families during the smallpox epidemic of the Spring of 1918 and the influenza epidemic of the following Autumn, certainly deserve mention. Twenty-five hundred of our employees and members of their families were vaccinated in the Shop Hospital at that time. This, with the redressings of the sore arms, was in itself "some task," and yet there was no delay or postponement of our regular work.

The influenza epidemic, when at its height, in taking away daily from work over 600 men, gave us some anxious moments and work. The company's hospital in the Adams' house is covered in a separate report. It is only necessary to add here that the report illustrated Beloit's need of a City Hospital.

Quite a number of our women employees have learned

the rudiments of nursing at the Shop hospital and have assisted in the homes of many of our sick.

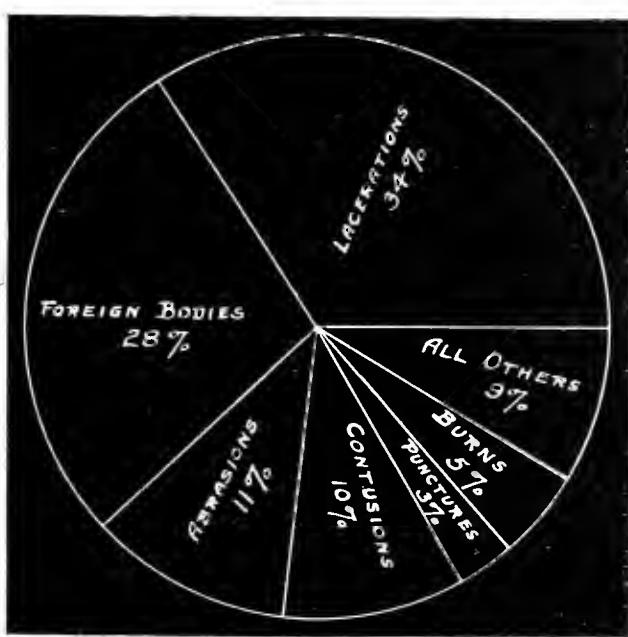
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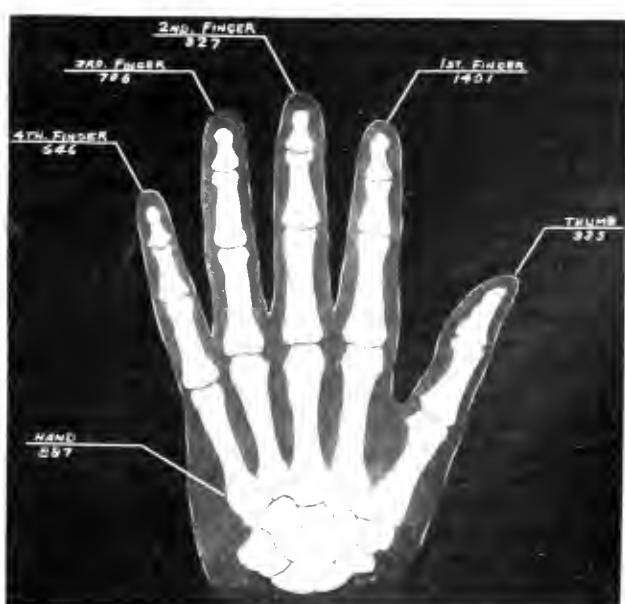
INJURIES TO FOOT	
Lacerations	6
Abrasions	15
Contusions	95
Punctures	25
Burns	68
Incisions	0
Infections	2
Sprains	14
Fractures	11
Foreign bodies	3
Total	239

INJURIES TO TOES	
Lacerations	19
Abrasions	8
Contusions	124
Burns	2
Infections	2
Fractures	7
Dislocations	1
Loss-Distal Joint	1
Total	164

Schematic classification of nature and location of injuries to the foot, 403 cases during 1918.



The number of accidents from January 1, 1918, to January 1, 1919, totaled 9,409. The nature of these injuries appear diagrammatically as shown.



A total of 5,512 accidents to the hand occurred in 1918. Locations are as shown on chart.

The Hospital Department is technically the head of the Welfare Department. However, we do not feature any welfare work and yet there is the best spirit of cooperation and helpfulness throughout the Beloit plant, and good deeds and big ideas followed by big acts abound. In fact, the hospital staff resent the word welfare when applied to their department, for they contend that they are as busy building engines, windmills, and pumps, as any department in the plant. Hospital production being "injured men at work," therefore no time can be wasted in waiting for dressings.

Staff Physician Inspects Plant

The staff physician is out through the plant quite a bit of the time checking up on suggestions as to drafts, gas fumes, and general hygienic measures. The entire shop was posted in reference to influenza before a single case was reported in Beloit.

A new hospital is planned and will be opened this season providing about three times the present space with a modern Roentgen-ray outfit, laboratories, and a six-bed ward. Rooms for examination of new employees will be provided also and all employees going home sick will report at the Shop hospital and again upon returning to work. The idea we are working on in Beloit is not to reject the physically handicapped but to fit the man to the job and with more spacious quarters, we shall be able to carry out this program much better.

THE JOURNAL OF INDUSTRIAL HYGIENE

Caustic criticism of the industrial physician or surgeon who makes a hit-and-miss diagnosis of accident cases which he does not take the trouble to fully understand, appears in the July number of the *Journal of Industrial Hygiene*, in an article from the pen of Robert B. Osgood, M.D., Lieutenant-Colonel M.C., U.S.A., instructor in surgery and in orthopedic surgery, Harvard Medical School.

He declares "that the diagnosis of hysterical spine should rarely be made; that the diagnosis of railroad spine means nothing; that the diagnosis of functional spine is usually a confession of our ignorance of the true cause of the trouble. My experience in medico-legal cases is not extensive, but it is large enough to have made me blush for the surgeon who contents himself with the diagnosis of sciatica or lumbago or functional spine, the nature of which neither the patient, the jury, nor the surgeon himself can understand."

Colonel Osgood's discussion bears the title, "Back Strain—An Accident or a Disease." It is the paper read by him before the fourth annual convention of the American Association of Industrial Physicians and Surgeons, at Atlantic City, June 9th. The July issue contains a statistical study by Austin D. Reiley, assistant inspector of risks, the Mutual Life Insurance Company of New York City, entitled, "The Problem of Ascertaining the Actual Rise in Mortality Caused by Unhealthy Trades."

H. R. M. Landis, M.D., assistant professor of medicine, of the Medical School of the University of Pennsylvania, and director of the medical and sociological departments, Henry Phipps Institute, Philadelphia, writes on "The Pathological and Clinical Manifestations Following the Inhalation of Dust."

F. Smyth, M.D., Dr.Ph., presents the results of studies carried on in the laboratory of hygiene of the University of Pennsylvania in "A Critical Review of Methods for the Study of Dust Content of Air."

Dr. John J. Moorhead, associate professor of surgery

of the New York Post-Graduate Medical School and Hospital, formerly Lieutenant-Colonel in the Medical Corps of the army, is the author of an article entitled, "Is War-Time Surgery Applicable to Industrial Surgery?"

The department of book reviews and abstracts of current literature contains a comprehensive digest of the current literature in the publications in the fields of health, medicine, research, industry, and the social sciences.

STUDIES OF THE MEDICAL AND SURGICAL CARE OF INDUSTRIAL WORKERS

"Industrial medicine," says Dr. Selby in *Public Health Bulletin* No. 99, 1919, reporting a comparative study of the medical service rendered in 170 industrial establishments, "may be defined as the theory and practice of medicine applied to the purpose of preventing and alleviating sickness and injury among industrial workers in order that they may enjoy the benefits of continuous and productive employment." It is an outgrowth of the necessities of business and "although fundamentally the science of medicine, the position which industrial medicine occupies is similar to that of employment, safety, and compensation." All are specialties of industrial management.

The reluctance of the average physician to accept this materialistic view has hampered its development. In making the necessary compromise physicians should note that, to be of the greatest usefulness, medical service in industry must benefit primarily the working people and that the limitations of its activities are set only by the initiative and resourcefulness of the man who directs the work.

Nor is this materialistic view of necessity a detriment to the development of industrial medicine, for its success hinges upon filling the logical needs of business; and the methods, system, and correlation necessary all make for the most thorough work, and for the effectual application of the principles of preventive medicine.

Much indefinite material has been published relating to the functions of industrial medicine, and certain features of such service are emphasized in which even a cursory survey of the work being done indicates that there is little uniformity of practice. Some of the most talked of features are not generally undertaken, or are carried out spasmodically. The extent of such service is greatly at variance, partly because industrial medicine itself has not been standardized.

This study is based upon the service rendered in 170 industrial establishments in the eastern and middle western states, and the percentages are drawn from 155 establishments which lent themselves to definite analysis. Comparisons for the purpose of standardization are possible from this report. Salaries paid, the personnel required, specifications as to installations, equipment, with schedules of prices, etc., all of the most practical value, are given.

The extent of the service rendered, and the nature of the work undertaken depend upon the department to which the medical service is answerable. If appended from the welfare department, routine physical examinations, prophylactic measures, the care of illnesses, recreation, education, and advancement may come within the range of its activities. If an adjunct of the compensation department, its attention will be centered upon safety measures and the care of injuries. If aid in employment is the object, trade and temperamental tests may be emphasized. In any case, the man in charge has need of adaptability, capacity for administration, initiative, and interest in the

work to make it of the best usefulness to the group served.

It appears from these studies that an establishment employing from 200 to 500 people is warranted in having a dispensary and in employing a whole-time physician. While it appears that one physician can care for larger numbers of people in groups, it is also to be observed that slight provision for medical care in larger establishments simply indicates that only injuries are being cared for. Usually the employment of whole-time men broadens the service given. The percentage of whole-time men taking care of major injuries is 51; while 82 per cent of the part-time men,—usually specialists detailed for certain work,—handle major injuries. Minor complaints are treated by 94 per cent of the whole-time physicians, and by only 82 per cent of the part-time men; 4 per cent of the whole-time men treat serious as well as minor ailments; 15 per cent of the establishments have laboratories.

There is much talk about physical examination for adaptation to work, but this function was filled by only 45 per cent of the institutions studied; 17, 1.1 per cent, had regular sanitary inspection of properties, 4 had irregular inspection, and 6 inspected only on request or complaint. Much is to be desired both as to the functions of such departments and as to administration. The best field seems to be in the way of preventive medicine, and the best efficiency in cooperation and the proper correlation with the other departments of the business. It is coming to be required by the heads of the business because of its manifest usefulness, and to be appreciated and utilized by the men. Certain standards have been evolved, but many others need to be the subject of observation and study.

A complete set of the necessary forms for records are given in this study, and a cooperative medical service for small industrial establishments is outlined. Recommendations are made of the outstanding needs, one of the chief of such needs being provisions whereby industrial managements may be enabled to procure industrially trained physcians, sanitarians, and nurses for service in their medical departments.

RESPIRATORY DISEASES AMONG CLOTH SPONGERS

The cloth sponging industry in New York has been the subject of an investigation by the New York State Industrial Commission to determine the health hazard to the workers. The *Monthly Labor Review* of the United States Department of Labor, summarizes the results of investigations in ninety establishments and describes the method that has been found most practicable in removing the causes of respiratory and other diseases in the industry. The use of steam for shrinking textile products, and the excess humidity combined with high temperatures, caused by the process, produce atmospheric conditions that are said to explain the frequency of pulmonary tuberculosis and other respiratory diseases in the trade. By the use of fans and hoods for collecting the steam which rises from the machines, nearly normal atmospheric conditions are obtainable.

DRAFT BOARDS REJECT 3,411 NEW YORKERS FOR TUBERCULOSIS

The Tuberculosis Committee of the State Aid Association of New York has gathered the names and addresses of 3,411 men who were called from that state in the draft, but were rejected for military service by the local draft boards because of tuberculosis. In connection with the

opening of clinics in thirty-four counties of the state to care for the great number of tuberculosis patients reported during the war, among whom were many former soldiers, the rejected men will be given attention and treatment as a part of the crusade against the disease. The Association is experiencing some difficulty in locating all of the men, since two years have elapsed between the time of their examination by the draft board and the present.

LEAD POISONING AMONG PAINTERS

Although a large percentage of occupational disease is known to exist among painters, inquiries reveal that very rarely does a painter suffering from the ill effects of sickness produced by lead, turpentine, benzin or other volatile chemicals used in the painters' trade, visit a physician.

Dr. Louis I. Harris, director of the Bureau of Preventable Diseases, Department of Health of New York City, calls attention to the negligence of painters in seeking medical advice in cases of lead poisoning or respiratory affections, caused by the materials of their work. He reviews the clinical studies of 402 painters who presented themselves for examination at occupational clinics of the Division of Industrial Hygiene of New York City, upon the solicitation of the health authorities and the Brotherhood of Painters. No attempt was made to group the men under classifications by age and other headings, but the 402 subjects were considered typical of the trade.

Among the 402 painters examined in the course of this study there were found 163 active cases of lead poisoning—a rate of prevalence of 40 per cent. All of these showed definite clinical signs of plumbism; 72 or 44 per cent of the active cases of lead poisoning among these painters were found to have lead in the urine in addition to clinical evidence. According to Oliver's viewpoint as to latent or potential plumbism, there were thirty-five or 8.7 per cent of the total number examined who were found to have lead in their urine, without manifest clinical signs. In other words, nearly one-half of all the painters examined, or 48.7 per cent to be more exact, gave evidence of active or latent lead poisoning.

About 70 per cent of those examined were active cases of lead poisoning or gave a history of at least one, and often many attacks of severe disorders and frequency in the appearance of intoxication produced by the poisonous substances. There were 142 painters who gave histories of recent severe intoxication in which were noted the various symptoms of weakness, nervousness, and respiratory troubles and lead in the urine.

These spells of sickness were often accompanied by weakness and dizziness which caused falling from scaffolds or ladders and similar mishaps. Most of the men were certain that more discomfort and illness by benzin than by lead, turpentine, or other volatile elements.

A tabulation of 402 cases according to the number of years in which the subjects had been engaged in the occupation showed that a comparatively small number survive as active members of the trade after having attained the age of fifty years. Also, 64 per cent of the active cases of lead poisoning occurred between the ages of thirty and forty-nine years, whereas seventy-one, or 45 per cent of all those who apparently were free from symptoms of plumbism, were less than thirty years of age. Taken in connection with the fact that most painters enter the trade before their twentieth year, and, being skilled workers, follow it the rest of their lives, and

furthermore, that of the 109 who were more than forty years of age, 59 per cent were found to be suffering from active or latent plumbism, it seems fair to conclude that the action of lead is slow in asserting itself, but that less than half who have passed the age of forty escape the disease.

The analysis of the sixty-three negative cases in which the patient had been engaged in the painters' trade for a period of ten to nineteen years shows that most of them had followed the work for less than twelve years. The conclusion is derived, therefore, that the heaviest evidence of lead poisoning is found among those who have worked as painters for ten years or longer. This conclusion is supported by the fact that 31 per cent of all the men examined who had been painters for ten years or longer were active cases of lead poisoning, while 8 per cent were latent cases. Alcoholic indulgence did not appear to be important as a predisposing factor.

It is known that to drink a glass of milk at breakfast before starting work, is an excellent preventive precaution. On the other hand, many of the men were unfamiliar with the fact that a moderate-size breakfast of albuminous food, particularly milk, puts the stomach in a condition relatively free from acid which would act as a solvent of lead dust that might be swallowed during the work.

By questioning the men as to their personal habits in handling their food while at work, in washing their hands, keeping their clothes free from lead dust and working in properly ventilated rooms, it was found that the majority habitually commit thoughtless practices which predispose to lead poisoning. Other things which seem to be means of carrying lead dust into the system are the chewing of gum or tobacco, mustaches, dusty clothes, and lack of locker facilities. Other detrimental practices of the trade among the interior painters (most of those examined were interior painters) is that of shutting up a room in which the painting is going on, so as to prevent too rapid evaporation of the highly volatile benzine and other petroleum spirits in the paint. The symptoms of lead poisoning most often reported were colic, constipation, headache and other nervous symptoms, the presence of the blue line or Burtonian line on the gums, granular or basophilic degeneration of red blood cells, anemia, arteriosclerosis, heart affections and nephritis, backache, loss of weight and muscular strength, digestive disturbances, arthralgias and so-called rheumatism, pain in the chest, metallic taste in the mouth, and respiratory affections.

More than one-fourth of all painters examined—ninety-eight—gave histories and physical evidence of chronic bronchitis and fifty-eight of them were found among those who showed evidence of active plumbism.

Ninety painters had a fairly marked pyorrhea alveolaris, and 101 showed marked decay of the teeth and lack of care, making a total of 194 or about 48 per cent of all who were examined. Only marked defects of vision were noted. Fifty-one such cases were found. Ophthalmoscopic examinations were not made. Chronic pharyngitis was found in 127 painters. Hypertrophic rhinitis was reported in twenty-eight cases, and marked deviation of the septum in 147 painters. In only fifteen was marked hypertrophy of tonsillar tissue found. Forty-two men had varicose veins and seventy-two showed marked flat foot.

Dr. Harris recommends that remedial measures be divided in two general classes: first, public health measures; second, personal hygiene. Regarding public health activities he writes as follows:

"Public health authorities can never cope with the problem of prevention in any particular field unless full information is obtained as to the extent and prevalence of a given disease and of all circumstances which predispose to its occurrence. Just as it is essential for success in the prevention of typhoid fever to have complete reports of all cases occurring in the community, in order to be able to ascertain what possible sources of infection may have caused any particular group of cases, so is it essential, above all things else, not only that physicians shall be held legally responsible for the reporting of all cases of lead poisoning that come to their professional notice, but that employers, large and small, should be required by law to keep a register of all cases of occupational diseases and of accidents resulting from work, which occur among their employees. If, by a system of factory inspection and adequate penalties, such a law were enforced, the frequency of such diseases would become fully known to the public health authorities. The particular processes or employments in which such diseases occurred could be definitely ascertained and the proper measures could then be instituted for the elimination of the factors causing such diseases."

"Aside from such a general measure of control, the following specific provisions should be enacted:

"(1.) The mixing of dry lead pigments with oils or paints, while not a frequent source of danger, should not be permitted except when proper provision for the efficient removal of lead dust that may be generated in the process, has been made.

"(2.) Dry sandpapering should be prohibited; the use of pumice stone and water, or sandpaper moistened with one of the cheap mineral oils having a low flash-point, should be made mandatory.

"(3.) When chipping off paint, or the removal of paint by the use of acetone, wood alcohol, benzine, benzol or other volatile poisonous agent is employed, protective clothes and gloves of suitable character, kept in good repair, should be provided by the employer. If this work is done in confined or enclosed spaces, adequate means for ventilation should be provided. The enforced use of gloves in painting, and also in removing paint, would be an ideal measure of prevention, because it is through soiled fingers more largely than through any other source that poison is introduced into the body.

"An educational campaign would be necessary among painters to prevail on them to use gloves if their provision was made mandatory. In an inquiry that was conducted among a limited number of painters it was found that about 40 per cent did not take kindly to the idea of wearing gloves, though this is entirely practicable for most forms of work.

"Lockers or other adequate provision for the protection of street clothes from contamination by lead dust should be made mandatory on all jobs, small or big, whether done in a shop or carried on in apartments. Overalls should be provided; keeping them in good repair and clean is a matter of personal hygiene for which special educational effort would be required. Free access to toilets should be guaranteed to every employee, whether work is to be carried on in buildings which are in process of construction, or elsewhere. Washing facilities and especially hot water, nail brush, soap and towels, should be provided by every employer. Many painters who today use turpentine for this purpose because of lack of hot water and other necessities, would gladly avail themselves of such facilities; and that minority which is indifferent to the use of this most important protective measure could be induced to adopt the habit through educational effort.

"Lunch-room provision in a place apart from shops or apartments in which painting is done or in which lead pigments are mixed, should be provided on all jobs."

"Drop cloths should be frequently changed or washed."

The author discusses the desirability of substituting zinc for lead and the need of labeling poisonous agents. Then he comments on compensation under state laws as follows: "Compensation for occupational diseases and for occupational lead poisoning in particular, will do more to safeguard the health and lives of workers than any other single legal or hygienic measure. It should not be delayed."

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C. E. A. WINSLOW, DR. P. H., *Editor*

THE HEALTH CENTER MOVEMENT

THE most striking and typical development of the public health movement of the present day is the health center. As is always the case with a tendency that is in the scientific "fashion," the term is used to describe many more or less widely different enterprises. The Philadelphia Health Center, which was really a health center in its inception has now become little more than an infant welfare station. The health centers established several years ago by the New York City Department of Health were experiments in the decentralization of local health administration; while, on the other hand, the health centers established by the nurses of Henry Street are practically local nursing centers without any official status at all.

At present, however, there is a tendency to visualize the potentialities of the health center on a wider and more comprehensive scale. The Cincinnati Social Unit plan, with its primary emphasis on health, offers perhaps the best example of the health center extant; but the county of Oakland, California, is planning a county health center of a most ambitious type and public health agencies in the city of Boston have under consideration a plan for health cooperation which may ultimately create something in the nature of a principal health center for an entire city.

What is a health center? And when may any sort of local health organization for health betterment be properly entitled to the designation?

There are at least two broad aims which may perhaps be considered as essential features in any plan which can fairly claim the title of a "Health Center." The first of these aims is the provision for a definite, limited locality of a fairly complete machinery for health protection of all kinds. An infant welfare station alone, a nursing center alone is hardly a health center; for the essence of the whole plan is a sanitary background of the highest possible character. There must be

special concentration of physicians and nurses for school inspection within the district. There must be an infant welfare station, a tuberculosis clinic, and a venereal disease clinic in the area, and preferably at the headquarters of the center itself. There must be adequate visiting nurse service—at least one nurse for each 2,000 population, besides the school nurses—and preferably somewhat more. All these agencies whether public or private must be coordinated under a local district organization.

In addition to the correlation and intensification of such normal health activities as those cited above it is highly desirable that the health center should furnish certain other services not now generally available. First and foremost of these desirable new facilities is a diagnostic clinic. One of the most fundamental aims of the modern public health campaign is the detection and treatment of disease in its incipient stages and a diagnostic clinic, at which preliminary examinations may be made and from which patients may be referred to their family physicians or to existing dispensaries and hospitals, should prove an invaluable part of a program for intensive local health improvement.

In addition to the development of complete machinery for health preservation there is a second aim which is an equally essential part of the health center plan. This is the mobilization of local public sentiment within the district for the support of the health movement. In the Cincinnati plan this has been very thoroughly provided for by the organization of a sort of two-chambered legislature for the district, the upper house composed of representatives of various local professional groups, such as clergymen, journalists, physicians, lawyers, nurses, social workers, etc.; the lower house made up of local group captains, one from each block or other definite area within the whole district served by the health center.

Through an organization of this sort it is possible to conduct health propaganda which will be

really effective and to secure an interest in the aims of the center and an attendance at clinics of various sorts which no other kind of effort could possibly secure. Furthermore, it creates within the district the germ of a local health consciousness which will help to carry on the work long after special outside stimulation has been removed. This must be the ultimate aim of every vital health movement; for health will be effectively conserved in the long run only in communities where the average citizen appreciates the value and the necessity of health conservation as he appreciates the value and necessity of education at the present time.

EDITOR.

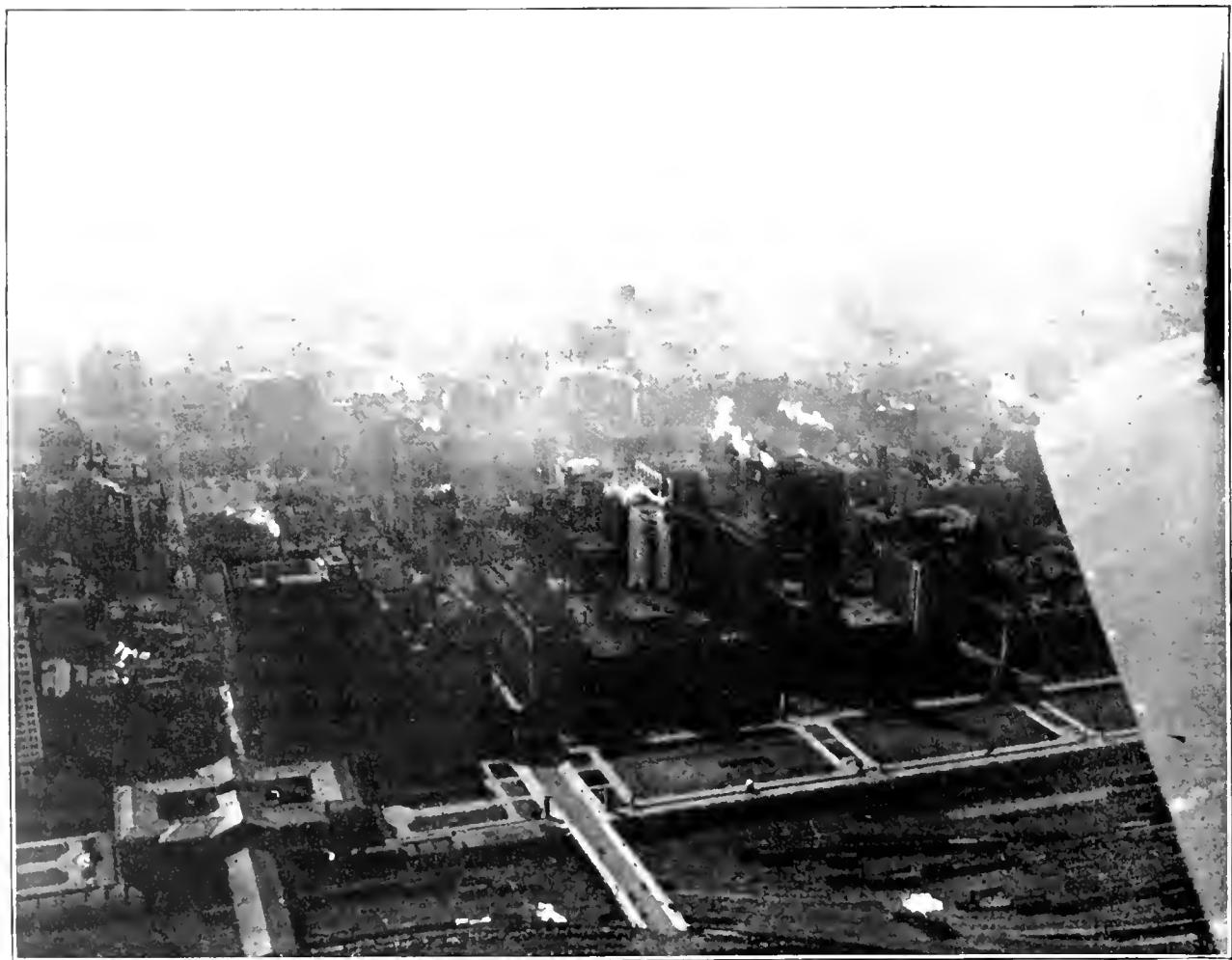
"What physical and mental overstrain, and underpay and underfeeding are doing for the race in occasioning infant mortality, a low birthrate,

and race degeneration, in increasing nervous disorders and furthering a general predisposition to disease, is appalling. These are the problems which require first consideration, if decadence is not to be the fate of industrial communities."—W. L. Mackenzie King.—"Industry and Humanity."

NARCOTIC DRUG ADDICTION A DISEASE

The attitude of the medical profession and the public, which assign drug addicts to the class of the socially outlawed and the criminal groups, is declared unjust and mistaken by Dr. Ernest S. Bishop, medical criminal professor of medicine, New York Polyclinic Medical School and Hospital, New York City. In an article on narcotic drug addiction and public health problems, published in *The American Journal of Public Health*, July, 1919, he insists that drug addicts are sick men and should receive treatment instead of being sent to jail. He advises a change in legislation intended for remedial purposes.

A FOREST OF SMOKE STACKS



SMOKE FRUSTRATES PHOTOGRAPHER.—American cities suffered excessively from the smoke nuisance during the war. The demand for coal to supply the navy and American shipping diverted the better grades of hard coal and anthracite to the seaboard, and bituminous coal and other smoke-producing, inferior grades of coal, were substituted in heating and power plants wherever possible. Chicago became a smokier, dirtier city because of the substituting of poorer grades of coal. The photograph shows the curtain of smoke which hangs over the business center or "Loop" district of Chicago. Half a million persons who are employed in the loop spend their working hours in an atmosphere so dense on many days that buildings cannot be distinguished even in outline at a distance of six blocks. The photograph was snapped from an aeroplane at a point directly above the shoreline of Lake Michigan. Because of the smoke-laden atmosphere, the buildings and streets one mile westward are indiscernible.

(Photo by International Film Service Co., Inc.)

THE PLANS AND PURPOSES OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

BY LEE K. FRANKEL, THIRD VICE-PRESIDENT, METROPOLITAN LIFE INSURANCE COMPANY, NEW YORK CITY, PRESIDENT, THE AMERICAN PUBLIC HEALTH ASSOCIATION

THE older members of the American Public Health Association who have followed its financial fortunes for years must be distinctly gratified at the fact that for the first time in its history the Association is not carrying a deficit but has a surplus in the treasury and is now in a position to carry out a program of activity which was formulated several years ago. The need of such a program is best indicated by a survey made by the writer last summer to determine the present status of health officers in the United States. A questionnaire sent out to the more important local and state health officials in the United States and Canada brought replies from 417. A study of these showed that 60 per cent received under \$25 per week. Only 36.7 per cent were full-time health officers and of these 25 per cent received less than \$25 per week. The average salary for the entire group was \$1,383 *per year*. Out of the 417 officers only eighty-six were appointed under civil service rule; forty were appointed for indefinite terms; 50 per cent of all the men were appointed for less than two years.

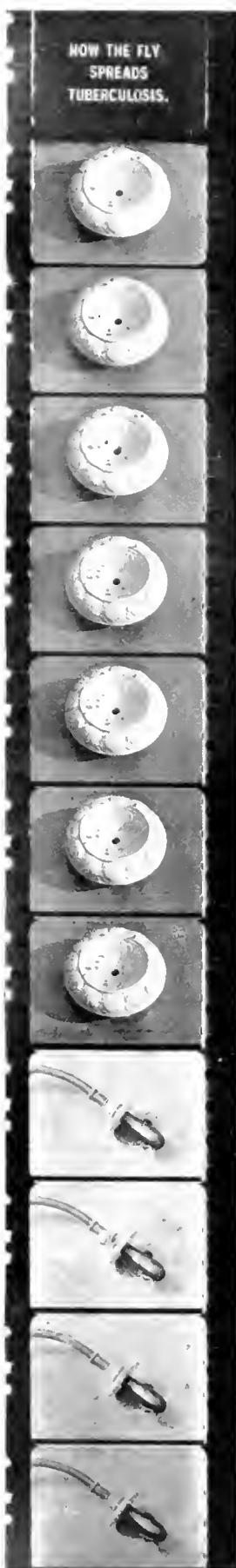
It is no exaggeration to say that owing to the apathy towards health matters no city makes adequate provision for its health department. In certain communities, the *per capita* is as low as eight cents as compared with \$2 *per capita* for the fire department. Inadequate salaries are paid to health officers. In too many instances the health department is the football of politicians. Health officers only too frequently have little or no technical knowledge and experience. The greatest asset which men have and without which their possessions are worthless, good health, is subordinated to other interests.

It is the irony of the situation that, notwithstanding the apathy and indifference of the public, its law-makers, and its legislators, there should have been a marked improvement in morbidity and mortality in the last thirty or forty years. I need not cite statistics here. The reductions in the death rates for typhoid fever, yellow fever, smallpox, diphtheria, tuberculosis, and other diseases are well known. These reductions have been accomplished by the enthusiastic and hard-working health officials, notwithstanding the difficulties that have been thrown in their way.

With this thought in mind, the program of the American Public Health Association contemplates the following: (1) preparation of standard forms and standardized literature for health officers; (2) procuring legislation providing for full-time local and state health officers; (3) procuring adequate appropriations for health work; (4) developing of a better *esprit de corps* among health workers; (5) meetings and conferences at which all organizations interested in better health may be represented; (6) conducting an employment bureau for health officials; (7) conducting an information bureau of health matters for members and others; (8) organization of local and state health associations; (9) coordination of national and state organizations engaged in health activities; (10) publication of a technical health magazine for education of health officials, the *American Journal of Public Health*; (11) publication of a popular health magazine which should interpret the scientific knowledge regarding disease in terms of popular understanding; (12) campaign of popular health education that will reach every citizen in the community.

That this program is an ambitious one, no one can gainsay. It is a feasible one, however, and can readily be accomplished if the sinews of war are given to the organization. The recent remarkable increase in membership, now approaching one thousand, shows very clearly that the membership of the Association is enthusiastically interested in its welfare and that the cooperation of the members can be depended upon to further the purposes and aims of the Association. It is hoped that by the time of the annual meeting of the Association in New Orleans in October next, 1,500 new members will have been added to the membership roll.

Following a suggestion made by Dr. George E. Vincent regarding better team-play in health work, at a recent meeting held in New York City a national health council was formed in which, for the present, there are represented eighteen national associations interested to a greater or less extent in public health movements. It is believed that this new council will be the nucleus for a better coordination of health work in the United States.



MOTION PICTURES IN PUBLIC HEALTH

BY LESLIE WILLIS SPRAGUE, DIRECTOR, INDUSTRIAL SERVICE SECTION, COMMUNITY MOTION PICTURE BUREAU, NEW YORK CITY*

IT is not too much to say that motion pictures have possibilities in the line of promoting public and private health, not exceeded by their very evident recreational powers. Up to the present time theaters have magnified their entertainment potency, but the promise is that in the near future other agencies than the theater will demonstrate their value for various educational campaigns, including public health as one of the most important.

Already motion pictures have proved effective in public health service, having received special consideration at the hands of many health experts and public health organizations. A large and increasing collection of general health films is available for use in educational, recreational, and propaganda work. Health organizations, corporations, some municipalities, several states, and the Federal Government have all produced films which present various aspects of health. Subjects ranging from the danger of the house fly and the mosquito to insanitary conditions and methods of combating such plagues as typhoid and infantile paralysis have been filmed. There lie before me as I write several lists of motion picture subjects dealing with various phases of public and private health. Sanitation and contagion are themes presented. Fatigue and rest have been considered. Nursing, dentistry, tuberculosis, pure food, and pure milk, are well illustrated.

Films Stimulate Sanitary Reforms

These and other health films have been used by many organizations in various ways to promote the interests of public health. One of the states

has produced motion pictures which presented the work of various state institutions for the purpose of informing its citizens concerning the need of those institutions. These films projected in many communities of the state resulted in arousing public opinion through effective information and bringing influence to bear upon the legislature which provided immediate and generous appropriations in behalf of the institutions of the state. In a southern city where insanitary conditions were found to be a public peril, the motion picture was pressed into service and pictures were taken and presented showing the dangerous conditions. The result of this effort was a speedy and general reform.

A considerable use has been made of motion pictures in many communities to permit private cooperation with public health agencies in combating the evils of impure milk and the house fly, contagious diseases, and insanitary conditions generally.

A number of large corporations have produced and used motion pictures to encourage interest in and a knowledge of health matters. While relating primarily to industrial health, concerning which a later article in this magazine will deal, these motion pictures include many other matters of public health. They have proved their usefulness in promoting a general interest in health matters.

Hospital Exhibits Health Films

The success of a week's health campaign conducted recently with the aid of motion pictures by a leading hospital is worthy of special mention. Daily and varied programs of motion pictures were projected in connection with meetings in behalf of the work of this hospital. These programs included such subjects as street clean-

*The first of a series of three illustrated articles by Leslie Willis Sprague describing the use of the motion picture in promoting interest in public health. The series includes articles on the following subjects: (1) "The Motion Picture in Public Health"; (2) "The Motion Picture in Industrial Medicine"; (3) "The Motion Picture in Social Medicine."



ing, fighting patent medicine, pasteurizing of milk as a protection against typhoid, public baths, rest periods, insanitary kitchens and food, proper care of the body in health, better babies, children's recreation, sex hygiene, tuberculosis, and other contagious diseases. The chief of the hospital gives hearty testimony about the gratifying result of these programs.

Although there are important subjects concerning public health easily capable of being filmed which have not yet been treated and although there is much room for improvement upon some of the health films already made, there is now available a sufficient library of films on health subjects to enable any agency to apply the motion picture to the needed task of awakening the public to a generous participation in the interests of health.

Two things are clearly to be done by motion pictures in this connection: first, to interest the people generally in matters of public health; secondly, to give the public definite information regarding important reforms in matters which from a health point of view concern the community and every citizen.

Subjects That Films Will Touch

Under subjects of general interest the motion picture is capable of presenting appealingly facts relating to the care and caution which must be shown by all citizens in order to observe necessary sanitary rules and to keep themselves in proper health.

Under subjects of needed reform in public health the motion picture will be effective in promoting and dominating public opinion, and through an awakened public opinion secure necessary appropriations for the furtherance of general health.

Where and how to use motion pictures for public health purposes are questions which must be answered by and for each community in accordance with local conditions. A motion picture theater is often available for special programs of general community interest. Health films are often shown by theaters in connection with their recreational programs. For the desired result, however, a wise plan is, using of the theater to present a full program in the interest of some specific health need, and to invite the citizens to view the pictures without charge. Brief addresses by health experts will give an added interest and effectiveness to the films that are shown.

In communities where there is no motion picture theater available for health propaganda, it





is always possible to use a church, a school auditorium, or a hall—even the streets—for the projection of health programs. Not the least effective means of reaching the particular elements of a community most in need of an awakened interest is found to be the projection of rightly organized health programs in parks or streets where the many congregate on summer evenings.

By a combination of these and other means, it is not impossible with

motion pictures to bring to the citizens of any community health interests of timely vital importance.

On the basis of results achieved, one may with certainty declare that motion pictures offer larger returns in health publicity and popular education than any other investment of time, effort, and modest means. This is particularly true in all matters where private cooperation is necessary to make effective public health regulations and undertakings.

DEFICIENCIES IN PUBLIC SCHOOL BUILDINGS ENDANGER HEALTH

IN MILWAUKEE at the June meeting of the National Education Association, Section in School Hygiene, Frank Irving Cooper, architect of Boston, chairman on Schoolhouse Standardization and Planning, spoke about the problems in hygiene involved in schoolhouse construction. It was a story of unscientific, uncoordinated work, in school buildings planned without much knowledge of principles, and developed in each section without much reference to the experience of other sections.

Mr. Cooper described the important relationships of the school building to the health of the pupil. He called attention to the necessity of clean, airy, well lighted structures, which will create an atmosphere of healthfulness and cheer, which must influence every thought and word of the child in this, the formative period of his life.

A very striking discrepancy was pointed out in the lack of uniformity in ventilation methods. Here there are standards that skilled men are planning, yet the various states are wide apart in their legal requirements and farther apart in the actual provision made. It is true that the states that have paid attention to the matter at all have adopted practically the same requirement for the number of cubic feet of air furnished, but no consideration has been paid to the efficiency of different systems of ventilation, and apparently little to en-

sure construction up to the standard. Massachusetts sets the pace, and the duct area—which may be taken for a general measure of the amount of ventilation—is from 3 to 6 per cent of the total floor area.

He spoke further concerning the surprising lack of rooms providing modern hygienic conditions. In 122 of the school buildings tabulated by his committee, sixteen have no provision for special rooms for women teachers, emergency rooms, rooms for physicians; forty buildings have a room for the teachers, but lack the other requirements, and only eighteen school buildings have a room for the school physician.

"In no department of the school building," said Mr. Cooper, in touching upon another general lack of hygienic consideration in school buildings, "is there less uniformity than in that pertaining to sanitation. Most large cities have regulations, but the larger political divisions, the states, have not realized the terrible significance of the lack of direct control over adequate arrangements for the privacy of the school children."

In illustration of some of the conditions that exist, he cited the figures secured by his committee with reference to the lighting of existing school rooms. Great irregularities have been found in this vital feature, rooms presenting intense lighting near the windows and comparative darkness back in the room.

PUBLIC HEALTH EDUCATION

BY BENZION LIBER, M.D., D.P.H., NEW YORK CITY*

IT seems to me that in the United States there are more popular health periodicals of all kinds than in any other country in the world. Probably Germany and England follow us closely in this respect. France has a much smaller number of such papers because her population as a whole has more complete reliance on the regular medical profession and also because it is less eager to learn facts concerning its health. As a consequence of this we see that the Frenchmen are those who suffer from the most ridiculous fear of fresh air, while the Germans and especially the Englishmen and Americans enjoy fresh air life indoors and outdoors much more than the Frenchmen. No doubt it is due to the many popular health writings and health talks that America is less alcoholized than most of the European countries.

Every day the necessity of popular health publications and their influence upon the public increases in this country and the time is not far when all our public health authorities will have to use health literature more extensively than they do to-day, in order to prepare the people under their jurisdiction for all the new measures they will see fit to take. Our health authorities have already felt the need and the importance of education and in this respect they are perhaps a degree in advance of the medical profession at large, which is not yet ready to talk a plain language to the plain people.

Educational Efforts Inadequate

But are the present educational efforts of the public health authorities satisfactory? And can we content ourselves with the private health papers in existence to-day?

The latter are of two kinds. There are those which are meant to attract the attention of the public to a certain healer or to a certain drug. They are the most misleading, obnoxious, and

Intelligent men perceive that the success of preventive measures in promoting the public health will come as a result of securing the confidence of the public.

The public health officer therefore seeks to collaborate with the people whom he serves, knowing that he cannot impose sanitary principles upon them by force from above.

The time is not far off when all public health authorities will find it necessary to use health literature more extensively than they do to-day, in order to prepare the people under their jurisdiction for the new measures they will see fit to introduce.

dangerous publications, and the best way to counteract their evil influence is through other publications of the intelligent, impersonal, and honest kind. The other type is the sincere, well meant journal, published by an individual or by an organization. As a rule its greatest and most characteristic mistake is its one-sidedness, as it usually represents one theory and only one, one school of healing and only one, or

one fad and only one. While that sort of literature has some advantages and has contributed largely to the enlightenment of the people, it also has great disadvantages and is often directly harmful.

That the right kind of education in health matters through the medium of literature must be effective and must constitute a great help to the health authorities and to the public, is easy to understand. It is one of those truths which are not in need of many proofs, but, although in such questions we cannot measure the results except by the opinions of those informed, we may gather some facts that are sufficiently convincing.

Dr. William A. Evans, formerly health commissioner of Chicago and president of the American Public Health Association, considers popular medicine so important as not to disdain to write for one of our greatest dailies. His simple, instructive, and helpful articles are widely read and discussed. He began his series, called, "How To Keep Well," in 1911, and we find the following words in the first introductory remarks by the author:

"Much of the work now is being done by health departments. These departments are unevenly developed. They have much of the machinery needed to do the work of physical welfare and health conservation, but they are usually very weak in getting public attention. . . . Our plan is to help these departments get to the people. . . . Their work has always needed publicity and agitation to make each unit of energy count to the full."

*Formerly editor, medical department, Foreign Press Bureau, Committee on Public Information.

As to the effect of these articles it is naturally impossible to give any definite information, but here is what Dr. Evans writes me in answer to an inquiry: "I think the articles have been of great service in getting better legislation and better administration in the section served by the paper. The president of the University of Illinois once told a group of men that my articles had changed the attitude of the Illinois legislature toward medical matters; but no one can say just how much the change in the public point of view is due to the influence of my articles and how much of it is the result of the constant evolution." May we not add that, at least to a large extent, this constant evolution is also a result of educational literature?"

In the last years other writers have followed Dr. Evans in his steps and we have had medico-popular articles in a number of newspapers throughout the country.

Among the popular medical publications of a broader, not one-sided type may be mentioned the very good Italian monthly *La Parola Del Medico* in New York, founded in 1914 and edited by Dr. Diomede Petillo, and the Yiddish magazines *Unser Gesund*, (Our Health), and *Dos Ratzionale Leben* (Rational Living) both edited by the author. The latter appeared in New York from 1910 to 1917 and had a very strong educational effect among the Yiddish speaking population of this country and Canada, as shown by the thousands of letters received by the writer. One of their direct results was the great demand of medical teaching among the Jews and the necessity for every Yiddish paper to print some sort of health literature.

Health Propaganda Effectual

Many people and institutions interested in public health have recognized the value of medical literature in the propaganda of health ideas. The Life Extension Institute publishes for its members a monthly health journal "conveying information regarding the prevention of disease, the improvement of health, and the acquirement of physical fitness, and *Keep Well Bulletins* dealing with special phases of personal hygiene and right living."

One of the best proofs that education in hygiene really pays is the fact that the life insurance companies, which certainly do not waste their money on futile experiments, have found it necessary to print and spread a mass of literary material for the purpose of instructing their policyholders how to keep healthy.

In *Public Health News* published by the Department of Health of the state of New Jersey,

February, 1916, are found the following passages, in an article entitled, "The Importance of Public Health Education Revealed by the Hand of Death":

"The most significant fact concerning recent advances in public health work is the rapid development of educational activities. This is due to recognition of the fundamental principle that complete utilization of present knowledge relating to disease can be secured only through the sanction of enlightened public opinion. Further impetus is given to the development of public health educational activities by realization of the very patent fact that health authorities must look to simple measures of personal hygiene for much of the further reduction in the death rate. . . . Educational work is a very important factor in preventing the majority of the diseases that cause death, and is the only kind of work that may be performed for the prevention of many of them."

Examples of Forceful Publicity

The American Social Hygiene Association has published many pamphlets and booklets on sexual hygiene, a number of which have been used lately by the health boards of several states and by military authorities as indispensable educational material for civilians and soldiers.

The Massachusetts Society for Social Hygiene, after five years of work, has decided that its most effective efforts are educational.

Dr. Donald B. Armstrong, of Framingham, Mass., executive officer of the Community Health and Tuberculosis Demonstration of the National Association for the Study and Prevention of Tuberculosis, says: "Most of our work aimed at the discovery of tuberculosis in this community has depended for its success on special as well as general educational activities."

In one of the weekly bulletins of the New York City Department of Health is an article which speaks of the decrease in the death rate during the summer of 1916 even in the midst of the epidemic of poliomyelitis, the decrease being ascribed to the great amount of health educational work done during that summer for the prevention of poliomyelitis and, incidentally, for more hygienic measures leading to prevention of disease in babies.

Dr. H. L. K. Shaw, director of the Division of Child Hygiene, New York State Department of Health, in one of his papers, shows in the following manner the importance of educational propaganda in his line of work: "The distribution of child welfare literature by the department is of far reaching influence and value. We have prepared a baby book which is entitled, 'Your Baby

—How to Keep It Well," and this is sent to each mother as soon as her baby's birth is reported, with a letter from the Commissioner of Health. In this way about one hundred thousand of these books are distributed each year, and about the same number are distributed by the nurses at the exhibits. It was found that a large percentage of the foreign population could not read the English book, and for this reason some leaflets were published in Italian and Polish."

New Educational Methods Necessary

Among the recommendations of one of the committees of the American Association for the Study and Prevention of Infant Mortality, figures the following: "Therefore, it would seem to be the plain duty of the committee on obstetrics to the association that it should continue in every possible way its work of public education, and should attempt to devise new methods of educating the public to the paramount necessity of saving young life in this country."

Dr. J. W. Schereschewsky, in "Problems of Infant Mortality," a booklet published by the Russell Sage Foundation, claims that the "chief causes of infant mortality are poverty and ignorance," and among the specific measures to improve conditions gives the following: "Instruction in the care of infants should be part of the public school curriculum in every state." If we wish to draw the right conclusions, we must say that instruction during the years of girlhood and motherhood would have a still better effect.

The necessity of public health education was the cause of the publication of a popular health literature by various health authorities and institutions, as the Children's Bureau, the Health Education League, the Association for the Study and Prevention of Infant Mortality, the Harvard University, the University of Wisconsin, the Russell Sage Foundation, the American Medical Association, the New York Milk Committee, the Health Departments of some of the states, the United States Public Health Service, etc.

Health Instruction Inadequate

As to the typical public health education given by public health authorities, so far it is very inadequate. The isolated and superficial lecture is often delivered by an incompetent man to a handful of people. Rarely can they get a comprehensive and complete series of lectures with good demonstrations on the subject. The health boards print short bulletins which touch lightly upon a question or two, and never enlighten thoroughly the reader on any subject. The usual bulletin is intended more or less for the medical

profession, for the local newspapers, or for such men who do not need it as a source of enlightenment. It is often largely filled with official announcements and with statistical data which mean nothing to the layman. The circulars addressed to the public by some health authorities are mostly childish and, as they are never preceded nor introduced by any preparatory matter, they have very little effect. The placards and short announcements or sentences, in the form in which they are published, are insufficient or altogether useless. Here is an example of such a placard distributed by one of our best, most active, and most intelligent bureaus of public health education:

"Sunshine and fresh air,
"Work, play and rest.
"Pure food, decent homes, and living wages,
"All these are needed to bring good health."

And here is a "Healthgram" put up as a poster in the street cars of a middlewestern city:

"Sore throat? Probably diphtheria.
"Call your doctor. Antitoxin is free.
"It prevents and cures."

Would not a good article or a series of articles on these subjects be preferable?

Health News Must Interest

The articles sent by officers of the health departments to the newspapers rarely have the desired effect. Most of the people do not care to read such matter in the paper mingled with the daily news. Many of these articles are lost as the paper will not publish those stories or notes which it believes uninteresting to the readers or which might result in some financial loss, as, for instance, when the articles are in conflict with the advertisers' interest. When it does print the article, it often throws out some very vital parts; as a rule, it will give the news part, the hot, sensational portion, and will leave out everything that is serious, instructive, or educational. The health departments know that so well that they have learned to adapt themselves to the circumstances and furnish the papers only such material that they know will appeal to the editors, and even so the health authorities succeed in passing in the larger and more influential newspapers but a small part of the material. More of it is published in the small provincial or country papers, but their influence is comparatively unimportant.

So, for instance, we do not often see in the leading papers the articles sent to them weekly under the name "*Health News*" by the United States Public Health Service, articles especially edited for the press and always accompanied by a note saying expressly that "credit need not be given,"

that is, the papers may treat the articles as original ones, an advantage which the newspapers apparently do not appreciate at all or for which they do not care. The Bureau of Public Health Service had in 1917, according to a communication to the writer, 1,266 newspapers on its mailing list. "No attempt has been made to ascertain the number of newspapers which publish the Health News," but "it is believed that the majority of papers use the material contained therein from time to time." I doubt whether the majority of the papers use it; but, even if this were so, only the minority would make use of it and probably the least important of the publications, and from time to time only, which would mean that much time and money is wasted in publishing a large part of the health news. After all, why should a public health authority always have to depend upon the newspapers? Why should it not possess its own medium to reach its public?

Disease Prevention Dawns

During the last years public health work has progressed tremendously and has shown to the world the possibilities of prevention as against the cure of disease, has opened before our very eyes that era which, when developed, as it will be in the future, will represent the ideal of applied medical science.

In the "Retrospect" of "Over a Century of Health Administration in New York City," Dr. Charles F. Bolduan divides the last century, from the point of view of public health, into the following periods: (1) the period of general sanitation, up to 1860; (2) the period of quarantine enforcement, 1860 to 1880; (3) the period of applied bacteriology 1880 to 1900; (4) the period of social analysis of disease, which began in 1900, and (5) the period of personal hygiene and education, begun in 1910, the latter two being yet in a stage of development.

The Channels of Progress

In our way toward the goal we have come to that phase in which the intelligent public health official, knowing the difficulty, nay, the impossibility, of imposing by force and from above the sanitary principles, is seeking the collaboration of the people for whom he works. This is in accordance with the advancement of our democratic ideas. The public health official tries to reach the people and to gain their confidence through all the means at his disposal. He tries to reach them in their organizations, as groups with common interests, but also, and mainly, as individuals. To be able to deal with the individual and to help him prevent disease, is really the aim of every

modern public health officer who understands his duty as a faithful and devoted servant of the public. Public health work is efficient only if it is thoroughly understood by the individual citizen, if it succeeds in interesting him, if it meets with his approval.

The individual being the unit of the vast building—organized society, the health and happiness of the individual being the sense and the purpose of society, public health has no other meaning than the preservation of the health of every unit of those who compose the public. Although it is but an elementary fact, it is useful to remember from time to time that society as such is only an abstract entity; but as the individual does not live alone and must be interested in his fellow-men from whom he derives so much profit, there is a continuous interchange of benefits between the individual and society. This interdependence between the individual and society is more visible in health matters than in anything else. Indeed, there is a most intimate relation between the individual health and the public health. Everyone's health is dependent upon everybody's health and reciprocally.

Therefore, while we have social diseases, with social causes, and for which only social remedies are possible, there is room enough to improve the health of the individual, independently of the social conditions under which he lives—that is, where the causes of disease are wholly or partly individual and where individual prevention and cure are feasible.

Enlightenment Obviates Opposition

Public health work has now reached a stage where education and instruction are paramount or, better said, where they are the only hope for further progress in public health work, the only means to achieve success and efficiency in our line.

We know from the bringing up of children that to give orders without giving the reasons therefor always results in failure. It is undoubtedly the same among adults. Orders must be understood to be executed in the right way and without opposition. For that purpose a continuous education and preparation are necessary. Do we not know that the greatest difficulties of the health authorities arise from the antagonism of the public, which is due to lack of enlightenment?

For all these reasons, I am convinced that it is necessary and that it would be useful for every larger public health authority *to publish a regular, periodical, popular, and comprehensive magazine on health questions.*

I go further and say that it is even the duty of

all health authorities to do so. Such a health journal would be the most important, the most indispensable tool in their hands. Of course, it will have to avoid all the mistakes and defects of the existing health papers. It will have to be broad-minded, not one-sided; edited in a perfectly clear and simple language; never loaded with too dry material; alive to the health problems of the day; interesting; honest; and not in the service of any private interests, not even in the service of the economic interests of the medical profession. Its policy should always be to serve the people.

The health authorities in some cities have attempted to publish health periodicals, but none of these have appeared regularly for any length of time; none has been large, comprehensive, and serious enough to deserve the name "magazine." None has been spread sufficiently in order to be known by the majority of the interested citizens. The Milwaukee Health Department prints irregularly a very small publication. The Cleveland department issues a monthly paper containing eight pages. The health commissioner of Chicago edits a more or less regular weekly consisting of sixteen pages. These feeble attempts are inadequate, but they go to show that the need of such publications has been felt in various places.

Cities Should Print Health News

Who can oppose this plan of a popular health periodical published by the city? Mainly those physicians who still cling to the old, and stupid, even if sincere, opinion that it is unethical, unnecessary, or even dangerous to teach the people how to preserve their health. There is also a selfish cause for opposition against all such plans, an opposition coming from a certain irresponsible section of the medical profession whose interest it is to keep in ignorance those whom they wish to exploit as their victims. These are the reactionaries of the profession, those who vainly try to turn the wheels of progress backwards. Fortunately, the number of such enemies of public health education is decreasing and in the silent but energetic fight between them and the public health authorities which goes on in the last years, the authorities are gaining ground, as more and more members of the profession begin to understand the importance of the public health work and as the people at large commence to feel vaguely that their interests lie with the authorities.

No doubt much progress could be made in the right direction if the medical schools would teach the students public health, would emphasize the ideal of preventive medicine, the rôle of the

doctor as a teacher of the people in health questions, the fact that through the education of the public the doctor's task becomes really much easier, that through it he will be better understood and his success in healing disease will be greater, that all the relations between the private physician and the public can only gain by education. The honest doctor should know that an educated lay public is the best material to work with; he should appreciate the fact that the people would know what to expect of physicians and that at the same time it will learn to discern between the ethical physicians and the quacks of all schools which swarm around the sick.

Health Publications Aid Authorities

The proposed publication would help the authorities in all their experiments and modifications of old rules and regulations. It would give much space to child hygiene, including such subjects as the hygiene of pregnancy and childbirth, the nursing and feeding of the baby. In my opinion, it should not neglect the question of birth control, but, of course, that would depend upon the convictions of those in charge of the paper. It would have to teach sexual hygiene in all its aspects, as far as it is possible in such a publication; all about the food problems in the large cities, dietetics, the proper way to preserve foods; the evils of alcoholism and of dangerous drugs; all about communicable diseases; how to prevent tuberculosis. It would spread knowledge concerning personal hygiene, and the best way of living according to the occupations; industrial hygiene; hygiene connected with rural or semi-rural conditions; water supply; the care or disposal of waste; the fight against mosquitoes. It should interest the public in vital statistics as far as it is not too special—in birth registration, in the notification of communicable diseases—so that the public would cooperate with the health authorities instead of being hostile to them. It should publish all the announcements of lectures on health, of all the clinics of the health department, of all the movements to promote the public health. It should give the reader elementary notions on anatomy and physiology.

A Creed of Optimism

From a long experience in the question of enlightenment in health questions, I am convinced that a magazine like the one proposed here, in order to bring results, must deal more with the positive side than with the negative side of the health problems, that is, with health, rather than with disease.

While the people should know all that is neces-

sary to know about the bacterial cause of diseases, we should be careful not to scare them into bacteriophobia, a state of mind which makes more for disease and less for health.

Let our teachings be optimistic, encouraging, hope-giving, cheering,—not gloomy, pessimistic, hope-destroying. Let us make the reader love life and health and be proud of a beautiful, healthy body.

As a rule, such a journal would be sufficient for a larger city or for a state; but here and there another local magazine in the language of the largest number of the inhabitants of a section might be necessary. In greater New York, there may be needed one in English, one in Italian, and one in Yiddish.

Every larger city and every state should publish at least one popular health magazine, as there are some special problems to be dealt with everywhere. A mining center, for instance, will need, besides the usual health education, frequent articles referring to those questions which arise from its main occupation. The same is true about agricultural, industrial, and other centers. There must also be some difference between a magazine edited for mountaineers and one edited for people who live near the seashore, and whose occupation is closely related to the sea, etc.

Approximate Estimate of Cost

As to practical details, while it is not possible to lay down any fast rules, it seems to me that it is best to adopt the principle of sending the journal only to those who will ask for it. The paper should not carry any paid advertisements. As to the price, the journal should be sent to those of the community who will apply for it, at cost price. This would help defray the expenses and the people would respect it more than if they should get it free of charge. I have calculated that, according to the present high cost of printing, paper, and cuts, a magazine of ordinary size printed on paper of the usual book quality, would cost, including all the expenditures and salaries, about four cents per copy, if the copy contain ninety-six pages and have a circulation of about one hundred thousand. Of course, these figures are subject to change and they are offered only in order to give an idea to those not acquainted with publishing matters. I have had in mind the fact that the articles contributed to such a publication do not have to be paid for. Most of them will be written by men and women in the service of the health departments, and it is certain that many of our medical scientists who are able to popularize will gladly answer an invitation to collaborate.

It seems to me that it is the duty of all health

officers who specialize in public health education to convince the city or state authorities of the great advantage of an official popular health magazine. The argument that the authorities will lack the funds necessary for its publication could be answered by the suggestion to have the readers defray the expenses by paying the cost price, by yearly subscriptions or by the copy, which would amount to a very small sum. Of course, an initial amount of money will be necessary, but even that would be repaid after a short time. It should be clear to every one that money spent in such a useful way will, in the end, economize more money. And there is something that is more important than money,—the people's health. Is it not worth while for the public health authorities to have an organ which would teach the people to collaborate with them, to prevent disease, to be their own public health inspectors, to live as healthy and as clean lives as possible, and longer lives?

5,000 DISABLED MEN GET TRAINING

More than five thousand disabled ex-service men are now in training under the direction of the Federal Board for Vocational Education. Thirty per cent of those in training are preparing for some trade or industry, twenty-five per cent are taking commercial courses, fifteen per cent are training for a profession, another fifteen per cent are studying agriculture in some form, and almost as large a percentage of the men are taking general educational courses, needed for their vocational training which is to be taken later. A few are in miscellaneous courses.

FEEBLE-MINDED IN ONTARIO

Among the progressive measures which are now being considered in the Province of Ontario and elsewhere for the care of the feeble-minded, the following are cited in the thirteenth annual report of the feeble-minded in Ontario, submitted for the year 1918, by William David McPherson, provincial secretary:

(1) The registration, under proper authority, of all feeble-minded persons not being cared for in suitable institutions and the provision of suitable supervision for those who can live in the community.

(2) The provision of Auxiliary Classes in the Public and Separate Schools in large centers for the benefit of mentally defective children.

(3) Provision for the examination, where desirable, of children and adults by physicians who are experts in the diagnosis of mental defect.

(4) The development of school medical inspection, to include special supervision of Auxiliary Class work.

(5) Medical examination, where desirable, of all persons brought before juvenile and criminal courts.

(6) Mental examination by experts of all persons admitted to orphanages, refuges, industrial schools, reformatories, Houses of Refuge, prison farms, public charities and other penal, charitable or reformatory institutions, and the adoption of suitable measures for the improvement and training of such persons, according to their mental capacity.

(7) The reorganization of community work for dependent, delinquent and defective persons, especially in childhood and youth, on the basis of better knowledge of the facts in each individual case, classification, training and preparation for citizenship where possible, and care and permanent control where citizenship is not possible.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., Editor

ETERNAL VIGILANCE

ETERNAL vigilance is the price of social progress. Not one moment may the eyes of progressive leaders be lifted from their watchful task lest reactionary Bourbonism take the advantage to get in its destructive work. Time that should be spent in doing the important work of the day must be used in protecting the right to give good service.

When the foregoing applies to a great humanitarian department of the Government in its relation to the Congress of the United States, it is time to speak plainly.

During the war Congress provided wisely for the rehabilitation of disabled soldiers and sailors, and placed the responsibility for vocational rehabilitation on the Federal Board for Vocational Education. Whenever any soldier or sailor is certified to the Bureau of War Risk Insurance as having a disability amounting to 10 per cent of his capacity, he is allowed the privilege of vocation re-education under the Federal Board.

The Federal Board and its director, with a vision unsurpassed in Government circles, proceeded to do its work. That work required the charting of new fields. There was very little experience in this country to go by. There was no possible way to estimate the extent to which this service would be used. Although hampered by conflicting provisions of law, the work of the Federal Board has been one of the outstanding successes of the war efforts of this country. The Board looked at the problem in a big way and planned to meet any emergencies. The best men obtainable were selected without reference to any consideration except ability to grasp new problems and accomplish results.

Just as the time when the work was at its height, when thousands of soldiers were applying for vocational work, a small coterie of Bourbon

politicians in Congress proceeded to limit the appropriation and to curtail the organization in such a way as to disrupt the whole well-planned program. They had no knowledge of the required work or of the expense, nor of the possibilities for the welfare of the soldier. They cut the appropriation and they phrased the wording of the Act so as to limit unduly the salaries of the experts in the fourteen districts of the country.

Then something happened. The Bourbons did not seem to realize that they were dealing with the problem of the wounded soldiers for whom the people of this country have the tenderest consideration. Protest was instantaneous. President Wilson vetoed the bill and told Congress plainly its duty in the matter. A few of the more ignorant slightly awakened to their folly, tried to defend themselves by making attacks on the Board.

It was charged that the Board had no vision, and that they could not tell what the work would cost. Chairman Good of the Appropriations Committee of the House made the terrific charge that he never knew or heard of the members of the Board or the director. Senator Smoot, undaunted by the political fix into which he was trusting his party, tried to square his position by making unwarranted and untruthful charges against the Board and the director which were immediately and effectively answered.

They could not withstand the wave of resentment which swept in from every source. The bill was re-passed with the obnoxious features removed after a debate which was characterized by the most inane and foolish statements that could be imagined in a representative body.

Rehabilitation of war cripples was saved. Had it been a measure of lesser immediate appeal, the fate would probably have been otherwise. Truly, "Eternal vigilance is the price of social progress."

EDITOR.

THE NEEDLESS WASTE OF MAN POWER

BY JAMES PHINNEY MUNROE, VICE-CHAIRMAN, FEDERAL BOARD FOR VOCATIONAL EDUCATION, WASHINGTON, D. C.*

SINCE it is the fashion in these spacious days to talk in large amounts, and since no one is criticised for using such figures loosely, we do not hesitate, though, of course, without exact statistics, to declare that at least two million boys and girls reach the age of sixteen each year. With more confidence, however, because of careful consideration of the calculations required, we venture to assert that, on the average, his family, his community, and society in general have expended at least \$4,000 to bring each youth forward to this sixteenth year. Multiplying these figures, it appears that there is annually added to the national capital, taking sixteen as the average initial year of economic productiveness, the huge sum of eight billion dollars in potential manpower. The amount of material capital annually added is much greater; but this new non-human capital is static and in large part begins at once to depreciate, while that added human capital is dynamic and has within it power of almost limitless increase in productivity during a succeeding period of at least fifty years.

Child Welfare Is Economy

Moreover, the amount of potential capital added each year would be vastly greater than it is, were it not that such large numbers of boys and girls never attain to even their sixteenth year, and an enormous aggregate expenditure upon infants and children who die before reaching even the beginnings of productivity is, from the social-economic standpoint, virtually thrown away.

Consequently, a large share of "born" manpower is lost wholly to the world, and all that amount,—which we have guessed to be eight billions,—of new human capital which is actually "in being," is still only potential and much of it either comes eventually to nothing, so that the expenditures of society upon it prove to have been clear waste, or else is so mishandled or kept from proper development that it falls lamentably below even minimum efficiency.

Of all the terrible wastes which confront the world every day,—wastes of food, of water-power, of forests, of mineral resources, etc.—none is so appalling and none so needless as is this hourly throwing away of precious human power. Furthermore, while material wastes naturally bring about unnecessary privation and suffering, human waste involves not only that, but also mental and moral distresses,—the multitude of

sorrows which accompany sickness, suffering, untimely death, lives broken by inefficiency and bad habits, lives wasted as the result of an endless list of misdemeanors and crimes which, in almost every instance, are the outcome, not of sin, "original" or otherwise, but of individual ignorance, family and social inefficiency, and national indifference.

Seven Sources of Waste

There are seven main sources of this incalculable and wicked waste of human capital. They are: infant mortality; infant and child morbidity; inefficiency brought about through illness and invalidism; inefficiency due to lack of education or to want of the right kind of education; inefficiency having its origin in absence of any stimulus or of the right sort of stimulus; needless accidents and preventable disease; and failure even to salvage the more or less efficient wrecks which result from such disablement.

A layman has no right to discuss, in the presence of physicians, problems of needless mortality, or even that far greater waste due to the inefficiency which has its seat in childhood illness or malnutrition or which arises from a state of virtual invalidism due to bad sanitation and ignorance of the simplest hygiene; but it is permissible for one not in the profession to discuss the other four sources of human waste and loss.

Educate for Specific Needs

The first of these non-medical sources and the one which, next to infant mortality, claims the largest number of victims is lack of education or want of education meeting the individual's specific needs. Mere book learning is of course a minor question in the real business of education, though no one will dispute that it makes for great social waste and loss to have, as we do in America, immense numbers ignorant of English, ignorant of the "three R's," or ignorant of both. The main waste is found, however, in that far larger body of persons who have been subjected to some kind of nominal schooling but upon whom neither the school nor any other form of education has made any actual impression. So far as concerns moral understanding, mental power, and social efficiency, those millions of persons are as densely ignorant as any savage in the heart of Africa.

*Based on a paper read before the Forty-third annual meeting of the American Academy of Medicine, Atlantic City, June 9, 1919.

One of the chief reasons why there exist in the United States innumerable men and women who, from the point of view of social and economic effectiveness, are totally uneducated, is because not only the schools, but also society in general, have almost totally ignored the main foundations upon which education should be built. No one will deny that because the two most powerful, most primitive, forces in human life are hunger and desire, and that civilization has evolved through the elaborating and refining of the social processes by which it is attempted to satisfy these fundamental needs. This being the case, education should largely be predicated upon those supremely compelling forces, and should go as far as is humanly possible in preparing every boy and girl to earn intelligently and with satisfaction the best possible living, thus rationally satisfying elaborately "civilized" hunger, and in making him or her ready for the almost universal vocation of marriage, home-making and the bringing up of children, thus rationally satisfying elaborately "civilized" desire. A thorough-going study of the problems of human waste would undoubtedly reveal that the roots of all seven of the sources of loss above enumerated go down to the inefficiency of most human beings in their nominal "earning" and to their almost total ignorance concerning the fundamental responsibilities and the daily details of that universal vocation, home-making, which, as members of households and in most cases as fathers and mothers of helpless children, they have so unheedingly assumed.

Stimulate Toward Efficiency

A second enormous source of human waste, from the economic standpoint, lies in the fact that there is an almost total lack of stimulus towards efficiency in whatever vocation the individual is attempting to pursue. Most such vocations have been chosen without knowledge, are followed without interest or understanding, and are regarded as tasks to be grudgingly performed in exchange for wages quite as grudgingly paid. The war has emphasized anew the almost incredible power of a recognized and stimulating goal in bringing workers up to a high level of productivity and it has shown, by contrast, how largely absent from the ordinary vocations of life is any stimulus except the purely negative one of that starvation which is the inevitable portion of the man, too proud to beg or too honest to steal, who will not work. That starvation stimulus serves to keep every unsupported man and woman at some kind of labor; but, being negative, it tends to depress his productivity to the very low-

est level consistent with "holding his job." On the other hand, some positive stimulus, such as genuine interest in one's work, active understanding of what it is aiming to do, or a reward that can be visualized as worth working for, immensely increases the capacity for work, and through such stimulus the output of even a comparatively low grade worker can be multiplied to an astonishing degree.

Interest Increases Output

The most pressing problem in industry today is that of finding some way of greatly increasing production while at the same time reducing the hours of work and the drudgery of labor. Far from being insoluble, this happy condition can easily be brought about; for, with an effective stimulus, the output of the worker will be largely increased, the strain, both physical and mental, upon him will be correspondingly reduced and, as a result, he will find what President Eliot has so aptly called "the joy of work."

This stimulus does not necessarily take the form of money; indeed, experience seems to show that a "bonus" or other form of financial spur is largely ineffective. Really to grip a man, the stimulus must engage his interest, his innate desire for useful service, his sense of loyalty; and actual demonstration has shown that such loyalty can be aroused even in low scale workers if they are regarded as human beings susceptible to higher forms of appeal, and if their needs and interests are carefully studied from that point of view.

Accident Control by Education

A third source of appalling waste and one accompanied with peculiar suffering is found in the extensive field of preventable accident, industrial and otherwise, and of avoidable industrial disease. The solution of this problem belongs jointly to industry and to the medical profession and, happily, much study is being given the subject throughout the civilized world. It is a waste, however, that cannot be controlled—as too often we attempt to regulate evil things—by laws and ordinances. Accident prevention and the stamping out of disease can be brought about only through widespread education, both within industry itself and before working age is reached, as to the need of unceasing caution, the meaning and use of safety measures, and the sources and control of industrial disease.

A fourth great waste arises from the fact that society not only tolerates a huge toll of victims of accident and disease but has heretofore done little or nothing to restore those shattered victims to

any sort of economic efficiency. Consequently, hundreds of thousands of maimed and otherwise handicapped workers have been thrown on the industrial scrapheap, to their own distress and to the burdening of society, when adequate training might have made most of those handicapped persons perhaps even more efficient than they were before the disabling accident.

Take Stock of Human Resources

Fortunately the war greatly stimulated interest in this problem of human waste, for it compelled an actual count one by one of the number of human beings available and effective for a wide range of services. In that human accounting we were forced to acknowledge our stupid heedlessness and criminal prodigality in regard to this most precious of all resources. It is no new thing for a government, whether Federal, state, or local, to do something toward lowering the death rate—especially in infancy,—and toward preserving the public health; but never until the war brought us face to face with the necessity of getting enough trained and trainable men to meet a crucial emergency have those in authority in the United States given the heed they are now giving to this and to many other complex problems of human conservation.

Again we refrain from dealing, before physicians, with details of governmental care in matters of personal and public health except to note the broadening of its former activities, the extension of its cooperation with the health work done in states and communities and the institution of a variety of new services which cannot fail to have far-reaching influence upon the problem of reducing manhood waste.

In the field of education, the Federal Government, especially through the Bureau of Education, is taking effective steps toward assisting the states to diminish that burden of illiteracy under which all of them,—and some of them to a scandalous degree—are trying to carry on. It is also active in promoting a nation-wide campaign for Americanization as a result of which it is hoped that there will be a healthful diminution in the number of those who accept all the benefits of living in the United States without making any effort to learn the English language and without taking any steps whatever towards responsible citizenship. These activities, many of them contemplated or tentatively begun long before the war, have been quickened thereby and have found much support from quarters heretofore indifferent or even hostile to this fundamental need of American democracy.

Another pre-war educational activity of the Federal Government has been greatly forwarded by war experience in the stimulating of vocational education. In February, 1917, was passed the Vocational Education Act under which the government at Washington cooperates with the states through subsidy and in other ways in encouraging sound vocational training for youth over fourteen in agriculture, industry, commerce, and home-making. In the less than two years during which this law has been in effective operation upwards of half a million persons have been given some measure of vocational training under Federal subvention and over fifteen thousand teachers will have been trained or will be under training for vocational service. By December 30, 1917, every state had taken advantage of the law, and in most of the states the field for this type of schooling is every month extending. The effect of all this upon that type of human waste which results from lack of education, or from an education unsuited to the needs of the individual boy or girl, cannot fail to be, in a comparatively few years, most salutary.

Lack of Adjustment Remedyable

Upon the side of devising adequate stimuli for the worker, the Federal Government cannot do as much, of course, as it can in the more definite territory of education; but as a part of war service important contributions have been made in the comparatively unexplored regions of employment management, of labor turn-over, of the regulation of unemployment, and of the prevention of misunderstandings between employer and employee. Moreover, the Vocational Education Act permits of the development of sound methods for training foremen, superintendents, etc., which in time should greatly assist in getting at the real heart of this problem of waste through lack of adjustment of the worker to the conditions under which he works; but it is a development which can come only slowly and which must be accompanied, or indeed preceded, by the education of both employer and employee concerning their joint responsibilities to society and to the individual boys, girls, men, and women who, as workers, are finally the determining factors in all social growth.

Employer and employee must both be extensively educated, also, along lines of safety and hygiene if the incalculable economic and social loss through avoidable accident and preventable disease is to be done away with. Meanwhile, the Federal Government is already doing something through promoting the teaching of such subjects in the schools, and is doing and will do much more

in calling public attention to questions of conservation through its support of measures for rehabilitating those disabled in war, a support soon to be extended to those injured in the pursuits of peace.

Re-Training for Handicapped

In June, 1918, Congress passed a Vocational Rehabilitation Act making the Federal Board for Vocational Education, already in existence for the purpose of administering the Vocational Education Act, responsible for placing back in industry, directly or after adequate training or re-training, every soldier, sailor, and marine disabled in the late war under circumstances entitling him to compensation under the War Risk Insurance Act, when such handicapped men desire this kind of help. Already the meaning and purpose of this legislation have been placed personally by agents of the Federal Board before at least a hundred thousand disabled men, and already many thousand of these have been put into training or have been recommended therefor. Even in this short time the experience of this country, as well as the longer experience of our allies, has satisfactorily demonstrated that, given proper training for an occupation which not only is within his powers but appeals to his interest, almost any disabled man can be made as efficient as before his injury. Moreover, it is being shown that with the special guidance and the individual training which the Rehabilitation law provides and the peculiar stimulus which war service has given, many such disabled men can be made more efficient, and in not a few cases markedly more efficient, than they were before.

Grants in Aid to States

So fully has this work of rehabilitating disabled soldiers commended itself that the Congress is likely soon to pass legislation extending, wherever a state may cooperate in the work, Federal aid towards the rehabilitation of men and women disabled in industry by either accident or disease. Were this proposed law to be passed and to be fully availed of, the number of persons transformed from burdens upon society to active workers carrying more than their own support would mount into the hundreds of thousands.

With the demonstration of the national need for human conservation so strikingly given by the war itself, with the direct stimulus which Federal aid and subsidy always provide, and with thousands of men and women roused as never before to the gravity of this waste of man-power, it seems more than probable that the next twenty-five years will see really remarkable progress not only in direct life conservation and in indirect

conservation through raising appreciably the whole health level, but also in making life worth while by educating ever increasing numbers to understand what they are living and working for, by giving his work a real meaning to the worker, and by saving from economic disaster and personal despair millions whom we now ruthlessly consign to an existence worse than death by failing both to control industrial accident and disease and to rehabilitate their victims.

PUBLIC HEALTH SERVICE INVESTIGATES SICKNESS INSURANCE

Investigators for the United States Public Health Service have recently compiled a volume of information concerning health insurance and sick benefits among the 400 benefit associations of the United States. The data include the records of disability due to sickness and non-industrial accidents for which cash benefits were paid under the various regulations of the associations. The studies furnish an insight into the sickness experience of over 750,000 wage earners engaged in many different industries and occupations covering a period usually of three years.

General B. S. Warren, assistant surgeon, United States Public Health Service, and Edgar Sydenstricker, associate statistician, directed the inquiry. They conclude that a conservative estimate of the total amount of sickness which will require medical service under the contemplated health insurance measures in the United States, will average from eight to nine days per insured person. This estimate includes the first three days, and sicknesses lasting less than four days for which medical service would be provided, though it is not furnished at present by most of the associations, nor under the laws of states which make provision for health insurance.

A physician with 1,000 insured persons on his list might expect to have from twenty to forty constantly sick.

JOURNAL OF DENTAL RESEARCH

The *Journal of Dental Research*, in the initial number publishes valuable original papers and critical comments, among them the following: "The Genetical Factor in Dental Research," by C. B. Davenport, Ph.D., director of the Eugenics Record Office of the Carnegie Institution of Washington; a preliminary report, by Joseph Head, M.D., D.D.S., dentist to the Jefferson Hospital, Philadelphia, and C. Ross, bacteriologist, Mulford Laboratories, Philadelphia, on the "Bacteriology of Apical Abscesses." There follows a comment on the paper by I. J. Kligler, Ph.D., assistant in bacteriology, Rockefeller Institute for Medical Research, New York City; and further comment on the criticism by Kligler, by Head and Roos.

An open statement to Dr. William J. Gies, on the "Bacteriology of Initial Dental Caries, the Dental Mucin Plague, and a Proposal to Encourage Research Along These Lines, is offered by J. Leon Williams, D.D.S., New York City. Accompanying it is a reply by Doctor Gies to the statement by Doctor Williams, on the subject, "Bacteriology of Initial Dental Caries."

Several original papers are printed, and also the proceedings of the First District Dental Society of the State of New York, together with a paper read by Chalmers J. Lyons, D.D.Sc., Ann Arbor, Mich., on "Some Pathologic Conditions of the Mouth and Their Treatment."

HOUSING DEVELOPMENT AS A POST-WAR PROBLEM IN CANADA

BY THOMAS ADAMS, HOUSING AND TOWN PLANNING ADVISER TO THE CANADIAN GOVERNMENT, OTTAWA, CANADA*

Housing as a War Problem

As a war problem, housing has been discussed very fully already. The work which has been done by the British and American Governments is well known, and the Bureau of Housing and Transportation at Washington will shortly issue a report on its operations which will fully acquaint anyone with the latest information on the subject from the most authoritative source. In Canada we did not attempt to carry out any government housing during the war. That was a misfortune in one respect since it prevented the using of the energy and restlessness that come during periods of war, as a means of creating some bold experiment in model housing.

On the other hand it is our good fortune that our present position is not prejudiced by the carrying out of any extravagant and hurried scheme during the war. By extravagant, of course, I mean the necessary extravagance created by war conditions.

It Is a National Problem

Since the war ceased we have started in Canada to deal with housing as a national affair and as a problem of reconstruction. In that sense I believe the United States is still without any definite policy. In my opinion the Canadian policy in this matter is based on the soundest principles that can be applied under a federal constitution in a democratic country. Of course it is not in any sense final. It is a beginning and I am certain that if we apply proper administration it will be a beginning of very great things.

In the inauguration of an entirely new policy, involving almost revolutionary changes in sentiment and practice, it is better to begin cautiously and with moderate expectations, only making

*I commend the Canadian scheme *** as an example that might well be followed in the United States. That Government should have its Federal office of housing and town planning, a coordinating and advisory bureau. The war has been won by organization as well as by the splendor of our men. If it had gone on a few months longer you would have wasted more than you now need to spend in solving your housing problem. The Federal Government should offer a sum of money, which to be equivalent to the Canadian appropriation, would be about \$300,000,000, to assist the states to carry out housing and town planning schemes.*

sure that the principles are sound and that whatever is done is a contribution towards the complete administrative whole it is sought to attain. It is desirable also to use public enterprise as a stimulus and aid to commendable private enterprise and not as an alternative, except to questionable private enterprise.

The Canadian National Housing Project

The armistice was signed on November 11, 1918. Immediately afterwards representatives of the Federal and Provincial Governments of Canada met and, among other subjects, discussed the desirability of creating better housing conditions. It was observed that there has been a practical cessation of building operations during the war and a scarcity of housing accommodation. The Privy Council only reported on the matter on December 2, and on the following day, December 3, an Order-in-Council was issued granting a loan of \$25,000,000. On December 12, a committee of five members of the Cabinet was appointed to administer the loan. Prior to the taking of this action by the Dominion Government, the Provincial Government of Ontario had decided to appropriate \$2,000,000 for housing in Ontario as an addition to any Federal loan that might be given.

How Fund Is Administered

The Federal loan of \$25,000,000 will be distributed among the nine provinces of Canada, *pro rata* to the population. It is hoped that each province will add a contribution of its own so as to make the available total much larger. The money will be lent at 5 per cent to the provinces and will be repayable by them, in most cases, in six monthly, equal installments of principal and interest.

I will now deal briefly with the administration

*Read at the National Conference of Social Work, Atlantic City, N. J., June, 1919.

of the loan under two heads: (1) *Administrative Machinery*, and (2) *The Conditions and Principles Under Which State-Aided Housing Schemes Will Be Carried Out*.

I. Administrative Machinery

The Federal Government, the Provincial governments and the municipalities, are all involved in the machinery that has to be set up to carry out housing schemes.

Under the Constitution of Canada the duty of providing houses and controlling land development is a provincial and municipal, and not a federal matter. Many have urged that the Federal Government should itself carry out housing schemes, but this would interfere with the autonomy of both the provinces and the municipalities. For the sake of the future development of government housing and its successful administration, it is essential to pay full regard to this fact. In the working out of the administrative machinery great care has been taken to avoid anything that would have the appearance of interfering with the local government. At the same time it is obviously essential that the Federal Government should take some responsibility with regard to the way in which their money is to be used. They certainly should give some leadership and guidance on the subject and afford an opportunity for coordinating the work of the various provinces.

As we shall see later, each province, before getting the loan, has to submit a general provincial scheme of housing for the approval of the Federal Government. Some kind of Federal organization is necessary to examine these schemes, to report on them, and subsequently to exercise some oversight to see that they are carried out. All this must be done with great care and tact as a means of assisting the Provincial governments, rather than as a means of criticising anything they do. Once each provincial scheme is approved by the Federal Government, the jurisdiction in respect of all local schemes will rest with the provincial authorities. In the same way it is expected that as a rule the provincial authorities will show a similar confidence in the municipalities and that once the municipal scheme of housing is settled the municipality will be left comparatively free to administer it and to obtain such loans as it requires to be spent in conformity with the scheme.

To put it briefly, the machinery represents complete cooperation between the Federal, Provincial and Municipal governments with the responsibility divided as follows:

(a) *Federal*.—Responsibility for approval

of general schemes of each province dealing with the standards and conditions to be imposed by the province in making loans to municipalities; carrying out of advisory work in connection with provincial legislation, forms of scheme, and preparation of plans and specifications, etc., and reporting on questions relating to standardization, comparative data collected from different provinces, etc.

(b) *Provincial*.—Responsibility to repay loan to Federal Government and to administer the general scheme it has prepared and to secure from each municipality borrowing money a general municipal scheme for its own area.

(c) *Municipal*.—Responsibility for repaying loan to the province and supervising and carrying out all housing schemes in accordance with the principles and standards included in the municipal scheme which is part of, or consistent with the provincial scheme.

The result of the procedure is that the real work and the real responsibility rest with the municipality, although in many cases commissions are delegated to do the work. At any rate the responsibility is local. It is near to the people. Close observation of the working out of details will be best attained by this means. It is likely that the municipalities will be slow to accept the responsibility. This has proved to be a stumbling block to housing progress in most countries where national housing has been carried out. It is also probable that some people will fear that our municipal administrations are not competent to undertake such additional responsibilities.

Undoubtedly there are defects in our municipal councils and forms of government and we can always find good reasons for withholding the giving of any added duties or powers to our municipal administrators, but I shall hazard the statement that the longer we continue to do that the longer we shall have to wait to get local bodies in whom we can have confidence. My own opinion is that we should pile up responsibility on the municipal authority for all matters of local administration; that we should not attempt to supersede them more than is necessary for purposes of coordination and general progress, and that, even if this does produce mistakes, these mistakes will, on the whole, be less than if we attempted to centralize the machinery of the Government too much and to create new forms of bureaucracy.

The actual progress made up to the present is that a Federal office has been opened in which there are town planners, engineers, and architects engaged in collecting data, preparing reports on

different aspects of housing and town planning; preparing model plans for distribution to the provinces and municipalities; acting as a clearing house for information on all phases of the housing question; inquiring into questions of shortage of houses, etc. This office is in direct communication with the administrative departments of each of the provinces. The Order-in-Council setting out the Dominion scheme was not completed and issued until each province had an opportunity of raising objections, the result being that the Federal scheme was practically agreed to by all the provinces before it was made public. Since this Federal scheme was issued, on February 20, the following provinces have passed Acts of Parliament to take advantage of the loan and deal with the procedure necessary for that purpose: Nova Scotia, Prince Edward Island, New Brunswick, Quebec, Ontario, Manitoba, and British Columbia; leaving only two provinces which have, so far, not joined in the Government scheme, for reasons that are local and not because they object to the scheme in any principle.

Provinces Take Up Project

In four out of these seven provinces, general schemes of housing have been prepared and in the other three, schemes are in course of preparations.

In Quebec and Ontario, Directors of Housing have been appointed and steps to create special officials are being taken in the other provinces.

I am not able to enter into many details regarding the progress made, but will simply quote the latest report of the Director of Housing of the one province of Ontario, which says:

"The following 47 municipalities have passed the necessary by-laws bringing them under the provisions of 'The Ontario Housing Act, 1919.'"

CITIES	TOWNS	VILLAGES AND TOWNSHIPS ¹
Windsor	Sudbury	Port Dalhousie
Fort William	Sandwich	Madoc
Galt	Hespeler	Port Credit
St. Catharines	Ingersoll	New Toronto
Sault Ste. Marie	Oshawa	Nimitta
Ottawa	Ford City	Point Edward
Sarnia	Cochrane	Richmond Hill
Woodstock	Trenton	Fergus
London	Sturgeon Falls	Port McNicoll
Guelph	Leamington	Milverton
Niagara Falls	Palmerston	Neelin
Brantford	Perth	Brantford
	Whithby	West Oxford
	Listowel	Gloucester
	Bridgewater	
	Thorold	
	Mimico	
	Walkerville	
	Midland	
	Arthur	
	Port Colborne	

"About five hundred plans have been approved by the Director of the Bureau of Municipal Affairs, and in a considerable number of the above mentioned municipalities houses are under construction.

"The director estimates that the loans required

by these municipalities will aggregate nearly \$10,000,000.

"About twenty municipalities are considering plans for acquiring land and erecting houses on a large scale. Some of them have already purchased land."

Toronto, the largest city in the province, is not included in the above list. It is preparing a scheme of its own under special powers, and purposes to carry it out by means of municipal bonds raised for the purpose.

I would refer those who are interested in obtaining further information to the report of the Ontario Housing Committee, which contains a number of plans for use by municipalities, if desired, and also to the regulations and forms of the Ontario province, both of which publications can be obtained from Mr. J. A. Ellis, Director of Housing, Parliament Buildings, Toronto.

It will be seen from the dates mentioned and the progress already made that the process of joint cooperation of the three sets of governments does not lead to any serious delay in administration.

II. State-Aided Housing—Standards and General Principles of Schemes

In the Order-in-Council of February 20, the standards and principles of the Federal scheme were set forth. The general object was stated to be as follows: (a) To promote the erection of dwelling houses of modern character to relieve congestion of population in cities and towns; (b) to put within the reach of all workingmen, particularly returned soldiers, the opportunity of acquiring their own homes at actual cost of the building and land acquired at a fair value, thus eliminating the profits of the speculator; (c) to contribute to the general health and well-being of the community by encouraging suitable town planning and housing schemes.

Conditions to Be Complied with by Provinces

Four conditions were attached to the proposed loan as follows:

(1) The general housing scheme had to be approved as already stated. It was required that the general scheme should include a schedule of minimum standards for purpose of health, comfort, and convenience.

(2) Loans were restricted to \$3,500 for frame or veneered dwelling, and \$4,500 for dwellings of more durable construction as specified.

(3) Money could only be loaned to the

¹Since this was written the number has reached eighty.

provinces and municipalities, housing societies or companies with dividends limited to 6 per cent, and owners of lots for erecting houses for their own occupancy.

(4) The period was fixed to twenty years for local improvements such as pavements, and frame or veneered buildings; and thirty years for land and more permanent buildings. Due regard is paid to the life of the improvements with a view to encouraging more permanent construction. Thus a loan of \$3,000 for a frame dwelling for twenty years would cost about the same per month as a loan for a better house costing \$4,000 for thirty years.

These are the four conditions, but attached to the Government project are a number of recommendations with regard to standards. Some of the provinces are adopting these recommendations merely as suggestions to be made by them to the municipalities. Others are adopting them and making them compulsory, a few go further in some respects and not so far in others.

Encourage Better Housing Standards

I shall have to refer you to the Federal scheme, a copy of which I shall be pleased to forward to any applicants, for the details of the standards, and will only draw attention to a few of the outstanding points. The standards set forth are very general and do not enter into much detail. The object was to secure the things that are essential, and that are usually overlooked in municipal by-laws.

They comprise recommendations that land be acquired by a speedy method at the lowest cost; that sites be properly planned and that local improvements, sewers, and water supply, be provided in advance of the building of houses; that one-tenth of all areas for housing schemes be reserved for open spaces; that not more than one-tenth, and in no case than one-eighth, of the gross cost per dwelling be spent on bare land; that certain standards be applied to the sizes or rooms, distances between buildings, and sanitary conditions. For instance—every house should have a bathroom.

Proportion of Cost of Land to Cost of House

With regard to the suggestion that the cost of land should be fixed in proportion to the cost of the dwelling, the reference is to the land in an unimproved condition, and if pavements, sewers, and water-mains are constructed it would mean that the proportion of the site of the dwelling might be a fourth or a fifth instead of an eighth or a tenth.

So far as the bare land is concerned, no workman's house should be erected on land that in an unimproved condition costs more than an eighth or a tenth of the complete dwelling. One of the curious facts is that the provinces where land is most plentiful in relation to population are finding it most difficult to comply with this suggestion. In one of the old towns of Ontario, land is being obtained for building house at \$20 per lot, which will represent about one one-hundred-fiftieth of the completed building. The effect of this will be that the purchaser will be able to spend an extra \$200 on his house more than he could have done on land costing the ordinary price in a small town. This \$200 will go to supply those improved sanitary facilities that are usually left out through lack of means caused by too much money having been spent on the site.

Canadian Scheme Suitable for United States

I commend the Canadian scheme to the consideration of this Conference as an example that might very well be followed in the United States. That government should have its Federal office of housing and town planning, a coordinating and advisory bureau. The war has been won by organization as well as by the splendor of our men. If it had gone on a few months longer you would have wasted more than you now need to spend in solving your housing problem. The Federal Government should offer a sum of money, which to be equivalent to the Canadian appropriation, would be about \$300,000,000, to assist the states to carry out housing and town planning schemes. This money should be lent at 4 per cent to be equivalent to our 5 per cent. It should be lent to your state governments after consultation with them, and after settlement with them of the principles that would govern the spending of the money on housing schemes. Each state would prepare its own housing scheme, and one main condition of any Federal scheme should be that such a state scheme be prepared and approved before any loan is granted. Under state control the municipalities or housing commissions would work out the problem locally and would build houses where needed.

To make housing improvement more effective, however, it will be necessary to have better and more general town planning legislation in the states and to unite administration of housing and town planning together in a state department.

It seems difficult to believe that the American people with all their resourcefulness, their love of freedom and humanity, and their unequalled opportunities will let their program of reconstruction continue to have the defect that it does not

deal adequately with the most pressing social problem of our time. All of us realize what the housing problem is to-day in our big cities. In New York and Montreal it is getting beyond our control by any means within our power. Let us ask ourselves what the problem will be in twenty years hence when the slum population have multiplied more rapidly than other classes of population, and the slum areas have grown relatively

greater than now to our healthy areas, and the great cities are spread over double their present territory. There is hardly another social question to which it is more important that we should apply our energies, and there are few other social problems that can be effectively dealt with, without at the same time dealing with the problem of improving housing conditions.

TRAINING FOR MEDICAL SOCIAL WORK

A DESCRIPTION OF THE COURSE OFFERED IN THE TRAINING SCHOOL OF PSYCHIATRIC WORK AT SMITH COLLEGE,
NORTHAMPTON, MASS.

THE training of students for medical social work has been undertaken by Smith College. Last year the college offered a course of training for psychiatric social workers under the auspices of the National Committee of Mental Hygiene, in view of the anticipated demand for social workers in neuro-psychiatric wards of army hospitals. The increasing demand for trained social workers in several fields in which activities will be expanded during the reconstruction period led to the establishment of the Smith College Training School for Social Work. The fifty odd graduates of last year's course were immediately absorbed in positions in military and civilian hospitals and social agencies, and the need for trained psychiatric social workers is still acute.

The importance of increased facilities for training medical social workers was recognized at the last annual meeting of the American Hospital Association, when the following resolution, proposed by Dr. A. R. Warner of Cleveland, was passed:

Resolved: That the American Hospital Association express a recognition of a general need of a large number of women to supervise hospital social work, who shall have the advantages of training by a university in preparation for such work; that the essential elements in such education are (1) general education; (2) medical; (3) sociologie; and that this work be so combined as to make a university course of reasonable length.

And Be It Resolved: That the Executive Secretary shall send copies of this resolution to such universities as do now give practical courses in philanthropy and sociology and to any other universities contemplating the establishment of such courses.

Recently Dr. Richard C. Cabot of Boston, who is chairman of the Advisory Committee on Medical Social Work of the Smith College Training School, has issued the following statement:

"For three reasons the demand for medical social workers is increasing fast.

"(1) Hospital physicians who have worked with the Red Cross in France or in

this country have realized in the past two years that social work is an indispensable ally to good medical work. Disease can never be fought effectively on any large scale in hospitals, dispensaries, schools or factories without detailed hygiene education and without financial advice and aid. This is being brought home more clearly month by month to the community simply because war has brought us up against the facts.

"(2) The increased attention given to industrial disease and industrial welfare during the war is sure to be magnified still more by the fact that labor and all its interests will be more and more prominent in the public conscience during the next few years.

"(3) The problems raised by the wounded or mutilated from the United States service will call for the best team-work of doctor and social worker.

"In view of these facts, there is an urgent need for more and better social workers specializing in the medical field."

The new school at Smith College offers training courses in medical social work, psychiatric social work, community service, and an advanced course in child welfare which is open to persons already engaged in social work with children. The training courses are open to college graduates, or persons of equivalent education. Experienced social workers and teachers may be admitted to the summer sessions. The work of the training courses falls into three divisions, a summer session of eight weeks of theoretical instruction, combined with clinical observation, a training period of nine months practical instruction carried on in cooperation with hospitals and social agencies, and a concluding summer session of eight weeks of advanced study. The summer sessions are held at Smith College, Northampton, Mass. The practice work will be done in a num-

ber of centers—Boston, New York, Baltimore, and Philadelphia—under supervision of a local leader, with weekly group conferences.

According to this plan of concentrated study and practice, it is possible for the student to complete practically two years' work in thirteen months. The method of continuous practice is believed by many to afford the best practical training, as a student who gives full time to the work becomes completely assimilated into the organization in which she is engaged, and obtains richer experience when on duty regularly and without interruption. This method is an experiment which was tried successfully in the emergency course in psychiatric social work given by Smith College last year.

Student's Pathway of Approach

The school announces its special aims as follows: First, the psychological approach to social problems is emphasized in all of its courses; second, students are made acquainted with the applications of the scientific method in sciences bearing upon social problems—biology, psychology, sociology, psychiatry, and medicine; third, emphasis is laid on the discussion method of teaching rather than the use of the usual lecture system, in an endeavor to train for fearless and resourceful thinking about social problems; and fourth, the intense group life of the students in college dormitories and in continual association with their instructors permits a high degree of concentration.

Base courses in psychology, sociology, and principles of social case work will be required of all students. Those in training for medical social work will specialize in social medicine; those preparing for psychiatric social work will specialize in social psychiatry; those preparing for community service will specialize in social psychology and community organization. Each section will be under a group leader who is an experienced social worker in that particular field. The medical branches will be taught by experienced physicians with the assistance of visiting lecturers eminent in special fields of medicine and psychiatry.

From the standpoint of training for medical social work this experiment is unusually interesting. The trend in medicine for several years has been to force the physician to be an educator and a psychologist as well as a healer. Obviously he cannot be all this without help, and it is in these two newer aspects of his profession that the medical social worker can be of greatest assistance. Such a worker is concerned with the aspect of healing only in so far as she can assist

in securing tools for the doctor's plan. On the educative or preventive side of the doctor's work, however, she is almost essential. Treatment, to be truly effective, requires attention not only to the symptoms of the disease, but to the entire personality of the patient, and symptoms may be unduly prolonged because of the patient's mental worry over conditions which the doctor cannot control. In helping to bring about a subjective feeling of well-being in the patient, the social worker may have some part in the healing.

Her part, however, is never at any time a medical function: She is a social worker first and always, and her training should be essentially along social and psychological lines. She should know, as should all social workers, the structure and functions of the body and the important rules of health. In addition she should know enough of medical terminology to give her a working basis. She should know as much as she can absorb of the etiology of disease, something of prognosis, much of ethics, and above all she should understand the social aspect of disease both as it affects the individual and the community. As her work is primarily with the individual, she should know much of practical psychology. In brief, the medical social worker is essentially a social worker whose work is in the medical field.

RICKETS A FACTOR IN HIGH DEATH RATE AMONG TOWN DWELLERS

"The European range and frequency of rickets have long been realized, but it is doubtful if the indirect influences of this disease have met with adequate appreciation. Taking an average from a large number of examinations of children in towns and densely populated areas, it is found that over seventy-five per cent show some evidence of the condition. One of the greatest dangers constantly menacing the health of civilized communities, namely the future development of defective and carious teeth, has been shown to bear a very definite relation to the rachitic condition, and, if the results be followed further, it is seen that the markedly reduced resistance of the rachitic child may not only account to a large extent for the enormous loss of infant life in poor urban districts of this country, but also predispose in later youth to fatal terminations for normally subacute illness or to infection by organisms such as tubercle bacilli or low-grade streptococci, against which the healthy body has considerable powers of resistance. It is more than probable that, although not in itself a fatal disease, rickets may be one of the most potent factors in the relatively high death rate among all town dwellers."—*The Hospital*.

CLASS IN OCCUPATIONAL THERAPY

The opening of a class in occupational therapy for the training of teachers and instructors in that work, is announced by the St. Louis School of Occupational Therapy, in the first issue of a bulletin published by the school. The class will be opened about September 1. The course

is designed to prepare students to teach occupational therapy to physically and mentally handicapped persons, and convalescents in public and private hospitals. The school will try to supply reconstruction aides in government hospitals while the rehabilitation of disabled soldiers continues. An account of the work which is being done by St. Louis hospitals in vocational training and occupational therapy was contained in an article written by Professor G. Canby Robinson, of the Washington University School of Medicine, on "Occupational Therapy in Civilian Hospitals," which was published in the June issue of MODERN MEDICINE.

THE INFANTILE PARALYSIS PROBLEM

BY CLARENCE W. EAST, M.D., CHIEF, DIVISION OF CHILD HYGIENE, ILLINOIS STATE DEPARTMENT OF PUBLIC HEALTH, SPRINGFIELD, ILLINOIS

The Problem Stated

Acute poliomyelitis is endemic in the United States. The states of the North Atlantic Seaboard suffered repeated seasonal outbreaks from 1907 to 1916.

Illinois has probably passed through the third consecutive year of epidemic incidence of acute poliomyelitis, about 1,000 cases having been reported in 1916, a like number in 1917, and about 700 in 1918. The epidemic prognosis is grave for several years to come.

Other nearby states, as Minnesota, Wisconsin, and Iowa have suffered severe local epidemics. It is reasonable to assume a cyclic appearance of this disease in a group of states, especially about a greater center of population like New York City or Chicago, this cycle lasting over eight or ten years, when incidence drops again to the sporadic level.

Other sections of the country have had epidemic outbreaks on a smaller scale, which may take on a cyclic type and multiplied incidence.

In the absence of a generally acceptable or available specific or prophylactic treatment the facts just stated present a problem in the prevention of crippling, appealing to physicians, nurses, parents, and the public generally.

If considerable sections of the nation are to have several successive annual crops of cripples it behooves us to do what we can to meet the situation.

The convalescent stage of the first two years offers the opportunity for successful work.

The medical and nursing professions, parents, and the public generally must be taught the supreme value of rest, prevention of deformity, and retraining of muscles.

Services in afflicted centers must be established where patients may be examined and advised, and the medical and nursing professions taught the few simple principles which belong to the treatment of the convalescent stage.

A follow-up service is to be provided for the care of cases between clinics.

A fund in each locality is to be secured to buy braces and afford hospitalization for those in need of such aids.

A series of clinical centers should be established in connection with hospitals and social settlements. The members of the local nursing organizations are to be trained by clinical demonstration and exact prescription in the after care of each case.

Physicians are to be urged to retain charge of their patients as far as they desire.

County, township, and city officials, local philanthropists, and philanthropies should be interested in the financial requirements.

Each clinic is to be visited once in two weeks by a qualified physician in state employ. This physician should have associated with him at least one nurse who has learned or will learn the general principles of after care during the convalescent stage, and become skilled in muscle training, and also acquainted with the sociological side of the enterprise.

During the current year sixteen clinical centers have been established in Illinois. Four more centers have been visited from two to six times. Our detailed reports show the following facts in round numbers:

Patients seen at clinics.....	900
Revisits made to patients in houses.....	2,000
Number braces, casts, shoes, and appliances	600
Number receiving muscle training.....	400
Cases sent to hospital.....	37

We give six months' supervision of acute cases at intervals of two weeks. Then the interval is lengthened.

We find that other cities make application for clinical service and these requests are met as lengthened intervals in established clinics enable us to respond. One or more physicians in each center take an interest and attain competency to handle their own cases during the convalescent stage.

Members of nursing associations and students in training become informed and some of them become proficient in muscle training.

In some instances counties have provided a brace fund; in others, individuals and organizations have adequately contributed, so that no patient has had to go without a needed orthopedic appliance.

Old and severe orthopedic cases have been discovered and weeded out, and have been referred to surgeons for operative help.

Quacks and charlatans have been quite largely limited and discredited as far as the care of infantile paralysis is concerned.

An atmosphere of hope has been created which contrasts with the spirit of dismay which formerly swayed both professional and popular mind in the presence of epidemic poliomyelitis.

MUNICIPAL HEALTH WORK IN INDIA

The Madras Medical Journal, in the March issue, publishes an article by C. Singaraveloo Mudaliar, L.R.C.P.&S., assistant health officer of Madras City, dealing with the problems and faults of practical health measures employed by the municipality of Madras.

The state of sanitation in public places in India at the time of the British occupation, and the neglect of public health throughout the territory, corresponded to that of the Middle Ages in Europe.

The domestic life of families was such as to impede any effort in the direction of public health or control of municipal areas by the health authorities. The streets were narrow; the houses were crowded close together without regard for light and air; there was no provision made for disposal of waste and filth; and the drainage of cities scarcely deserved the name.

To make a bad situation worse, many of the residents dwelt in houses which closely adjoined the cattle sheds and sheep folds in the outskirts of the cities. Not until the nineteenth century were masonry drains constructed. For many decades the cesspools of the towns and cities were accumulating their disease-breeding residue until even the air was poisoned in their vicinity. The condition of the sub-soil in the city of Madras was deplorable it

was found when excavations were made in the 70's for the installation of water mains. The water supply was taken often from wells, tanks, and ponds in proximity to drainage ditches, sewage, and stagnant pools of water.

Chronic diseases, plagues, and epidemics exacted a large toll in deaths, and sickness prevailed in a considerable amount at nearly all times.

Since the year 1863, when Municipal Boards and municipal health departments were established, a steady advance has been made in the prevention of these diseases by removing the conditions that gave rise to sickness, plagues, and epidemics.

With the establishing of Municipal Boards it became possible to take the census of population in Madras and other municipalities. Next an endeavor was made to collect the vital statistics. An accurate registration of births has been accomplished by the employment of health visitors and corporation or municipal midwives. Deaths are reported with reasonable accuracy, but difficulty is encountered in obtaining full particulars for the purpose of amplifying the vital statistics.

Among the problems that have been dealt with quite successfully are ventilation, inferior foods, unhealthful dwellings, unclean streets and thoroughfares, sewage and garbage disposal, animals, plagues, malaria, vaccination, and relief of poverty. The author devotes several paragraphs to a discussion of the difficulties encountered and the methods taken to remedy each variety of neglect and insanitary practice.

"Interest in securing good roads need not be relegated solely to the engineer; in this matter the sanitarian should be a coadjutor," comments Dr. Mudaliar. He continues: "Public ways should be therefore, as far as practicable, so paved, metalled, or gravelled and tarred as not to favor inhibition or other retention of filth."

"The extension of gravelled or metalled streets into all *paracherries* and hutting grounds is essential for the cleanliness of soil and air, and it is the prime duty of a medical officer of health to see that roads are well made, kept in proper order, and watered regularly to allay the dust."

Of drainage systems, he writes: "Though the provision of effective drainage is an engineering task, the sanitarian should find out whether a system of drainage works badly or well, and suggest the character of engineering methods by which the defective drainage may be amended. He should see that the sewers are ventilated inoffensively by a perfect system of trapping."

Since the introduction and working of the drainage system installed in the three divisions of Tondiarpet, Madras, the death rate has fallen from 48.2 in 1911, to 44.6 in 1917. Similarly, measures for sanitation in the division of Nungumbakkam, Madra, effected a decline in the death rate from 72.9 per square mile for the period 1859-1861, to 22.8 per square mile in 1885. The chief corrective steps taken were the removal of accumulated filth, and the planting of trees, digging of ditches, opening of roads, the widening of streets, and the improvement of housing.

Supervision of food and the methods of handling, and control of the milk supplies, have been effective means for improvement of general health conditions.

Soldiers Return in Good Health

Uncle Sam gave a clean bill of health upon discharge to more than 93 per cent of the 2,000,000 officers and men of the United States army who have been demobilized since the signing of the Armistice. The Surgeon General

of the Army announces that up to July 9, six per cent of those discharged had been reported to the Bureau of War Risk Insurance for disabilities, and that one per cent were being held in service on account of communicable diseases or other causes.

LAW FOR THE DOCTOR

BY LESLIE CHILDS, ATTORNEY AT LAW, INDIANAPOLIS, INDIANA*

Are the services of a physician a valuable thing under a statute which prescribes a penalty for obtaining a "valuable thing" by false pretenses?

The above question was passed upon by the Supreme Court of Mississippi in the case of State vs. B. B. Ball, 114 Miss. 505. The case was unique because of the point of law involved. It was also interesting, and not entirely devoid of humor, because of the facts which were substantially as follows:

It appears that B. B. Ball was in the market for some medical services, and that he was not in a position financially to pay for them at the time. He therefore represented to Dr. J. B. Magee that he was the owner of one red cow about two years old, and agreed with the doctor, that in the event he (Ball) failed to pay for the services on or prior to a certain date that the doctor was to have the cow.

It further appears that the doctor rendered the services to the value of fifteen dollars, and that Ball failed to pay for same. We take it by implication that thereafter the doctor demanded the cow, and, no doubt much to his surprise, learned that Mr. Ball never owned such an animal, nor one that even remotely resembled the animal so vividly described by him when applying for the services.

This discovery of the perfidy of Ball appears to have aroused the doctor's righteous indignation. In any event, the following affidavit was filed against Ball under a penal statute providing for the punishment of those who obtain "any money, personal property, or valuable thing," by false pretenses. . . . Then and there knowingly, . . . and with the unlawful intent and purpose to cheat and defraud one J. B. Magee, a medical doctor, represent, pretend, and claim to the said Magee that he, the said Ball, was the owner of a certain red cow about two years old, and that for medical attention rendered or to be rendered the said cow should become the property of the said Magee, unless the said Ball should pay said Magee the sum of fifteen dollars for said services . . . when in truth and in fact the said Ball at said time did not and knew that he did not own the said animal or any other animal of a like description.

"And by reason of the said false representation, . . . did then and thereby procure . . . medical attention to the value of fifteen dollars, which he otherwise would not have received, . . . and against the peace and dignity of the state of Mississippi."

Ball was tried and convicted in the justice court, from which he appealed to the circuit court. The latter court decided in his favor by sustaining a demurrer to the affidavit for want of sufficient facts. In other words the circuit court held that the services of a physician were not "a valuable thing," or subject to be obtained by false pretenses, under the statute in question.

The state appealed from the ruling of the circuit court and the Supreme Court in passing upon the point raised said: "The exact question raised in this case is whether

*The fourth of a series of articles on "Law for the Doctor," written for MODERN MEDICINE by Leslie Childs.

or not the professional services of a medical doctor is 'personal property, or valuable thing,' or, to present the point more sharply, are the services of a physician 'a valuable thing'?

" . . . We think the object of the statute is primarily to reach the mischief of fraud or deceit practised by one person upon another in obtaining something of value by such deceit or false pretenses. . . . In the case before us the thing obtained by the false pretense and deceit was the services of a physician of the value or worth of fifteen dollars. . . .

"The services of the wage hand in the field or the employee in the factory or the professional services of the lawyer or doctor are valuable. . . . Therefore the services of the physician in this case is a 'valuable thing,' and when obtained by false pretenses and deceit the statute has been violated, and the guilty person is liable to prosecution thereunder. . . . This case is unusual in its facts, and is rather of minor importance so far as this particular case is concerned, and we hope that the old red cow will show up before another trial is had in the lower court, but we feel certain that the conclusion we have reached as to the principle of law involved is correct and sound."

The judgment of the circuit court was thereupon reversed and the case remanded.

NORMALIZING THE INDUSTRIAL CRIPPLE

By ELIZABETH G. UPHAM

(Reprinted from *The Vocational Summary*)

Study of the mental and emotional states of the returned man disabled in the war has shed an illuminating light upon the psychology of the handicapped. Failure to recognize the importance of the psychic factor in the case of the war disabled spelled failure in the effort to reeducate him. Normalizing the soldier's attitude has been the first essential in rehabilitation work, and from this point on has proceeded vocational training and preparation for placement in industry. It is equally necessary to understand the mental and emotional reactions and conditions of the victim of industry if the effort to rehabilitate him is to succeed.

It is to be noted, however, that the victim of industry has a definite point of view which differs from that of the victims of war, just as really as the circumstances and environments of military life differ from those of civilian life. This contrast in the reactions of the returned man and the civilian patient is further intensified by the future awaiting them and the attitude of the public that must absorb them.

The victim of industry comes directly from civil life. Whatever traits, such as ambition, initiative, skill, perseverance, carelessness, or shiftlessness, he may have possessed before his disability, they will tend to persist after his disability. He, unlike the soldier, has not been through months of military training or life at the front, where individual ideas gradually give way to blind obedience to orders. He is accustomed to depend upon himself. He therefore needs no gradual readjustment to civilian life; and in this respect his problem is less complicated than is that of the war disabled.

On the other hand, the handicapped soldier has advantages which the victim of industry can not have. However disabled the soldier may be, he knows there are hundreds of his comrades sharing the same experience. To be one of them, and to carry on with his fellows, is a real incentive. Furthermore the soldier is conscious that

his disability was incurred in a heroic cause, a cause that places him on a pedestal. This mental satisfaction actually assists his recovery. Professor Amar, the notable French specialist, has observed that soldiers who have performed some praiseworthy act and are consequently happy, recover rapidly. But the greatest advantage which the disabled soldier possesses over the man disabled in industry is the attitude of a grateful public. The man disabled in industry lacks the stimulus of community activity. He is not one of many, but alone and unknown he must pass through the tortuous experience of disablement. He has not the gratification of having incurred his handicap in a great cause. He was merely one of the vast throng of toilers. He has just simply dropped out. No public awaits him with outstretched hand, eager to show appreciation for his service. Rather he knows that his disability will increase the difficulty of finding employment, and that his handicap, instead of being a mark of service and distinction, will tend to make him a social as well as an economic outcast.

If the disabled soldier needs encouragement to prevent the despair of facing life with a permanent handicap, so much more does the man disabled in industry need such encouragement, facing his misfortune alone, as he does, and unaided by the sympathy of the public. It is the hopelessness of the outlook of the disabled civilian which is the root of the well-known "psychology of the handicapped." The reaction to a hopeless outlook may be to accept it with apathy and indifference, or it may be to assume the defensive and blame society and the disability for laziness and lack of effort; or again it may be to struggle against odds with superhuman endeavor until discouragement has completely broken the spirit.

If the man disabled in industry is given the same opportunity as the man disabled in war, if his peculiar attitude of mind is understood, if he is prepared for the circumstances he must meet in industry, and if his way is led by an intelligent public, the handicapped man may become a national asset of which his country may well be proud. He will be a credit to himself and his community. It has been said that this country shall have cause for national pride if the man disabled in war shall date his prosperity from the time of the disability incurred in his country's service. How much greater the cause for national glory if the vast throng of toilers who country are reabsorbed into the national life in such a way that they may realize self-respecting, independent, are every day disabled in the economic struggle of their useful, and happy lives.

REHABILITATION OF TUBERCULOSIS

Dr. H. A. Pattison of the National Tuberculosis Association has written a descriptive and statistical account of his investigations into the problems of community life and environment which are encountered by tuberculosis patients when returning from a sanatorium or hospital to their homes. His studies have dealt with the colonies of consumptives in sanatoriums, in respect to extending the idea of the colony to communities in which would reside persons who had left the institutions, but who still desired to protect themselves and others by following the practices of the sanatorium, while going about their business of family affairs.

The Federal Board for Vocational Education publishes the paper in Bulletin No. 32, Reeducation Series No. 6, under the title, "The Agricultural and Industrial Community for Arrested Cases of Tuberculosis and Their Families."

THE FREE PUBLIC HOSPITAL MOVEMENT IN PROVINCES OF CANADA*

A very strong movement for free public hospitals, especially for the rural districts, has been sweeping the West. There has been an increasing demand that provincial governments assume a greater measure of responsibility for public health. This has, no doubt, been brought about by what has been accomplished by the military medical departments. It is urged that if a complete medical and hospital service can so improve conditions among soldiers, an equally complete service for civilians would have the same result.

Each of the prairie provinces, in response to this agitation, has enacted legislation. Saskatchewan and Alberta have passed hospital acts providing for public hospitals to be controlled and financed by the taxpayers of the districts which they serve. The Alberta act is considered the most advanced measure enacted anywhere in Canada. It recognizes more fully than the Saskatchewan act the primary responsibility of the government, and provides a scheme of organization closely paralleling that for education, in which the government assumes the initiative in all organizations. The Alberta act lays the foundation for a system of hospitals as complete and gratuitous as the public schools. It is based on the principle of the direct responsibility of the state for maintaining the health of each and every citizen. The office of minister of municipal affairs is combined with health matters. Alberta has paved the way for a revolution of the present methods of safeguarding health; it provides the minister of health with adequate machinery to carry out a progressive democratic policy for complete nationalization of health within the boundaries of the province.

The act provides for alternate initiative by the minister and the ratepayers. This prevents action by the government before the ratepayers of a given district are ready for action, but gives the minister full general supervision over the administration by the local boards of each district. The minister establishes the districts; the ratepayers, by petition, set the machinery of the act in motion, the district board then assumes the executive, establishing a hospital having the benefits of provincial architects, medical staff to advise them as to plans, costs, etc., and the scheme is submitted to the ratepayers. Individual ratepayers have access to the Board of Public Utility Commissioners for redress for a wronged minority. These commissioners also adjudicate on disputes as to site when the various sections of the district fail to agree. Formerly many municipalities had endeavoured to combine by mutual agreement to form hospital districts, but, with the exception of Lloydminster, the plan failed owing to dispute over sites, the inertia of one municipal council or the hostility of another. By the present act it is believed Alberta will be much better served, as many local improvement districts would have been left isolated owing to financial inability to participate in the organization of the district to which it naturally belonged. The Alberta act differs from the Saskatchewan act in that the latter does not provide for such extensive government initiative.

Promote Study of Mental Diseases

The creation of a national institute for study and research of mental diseases is advocated by Dr. Harvey Cushing, who was in charge of brain surgery in the American Expeditionary Forces. He set forth the idea

before the convention of the American Medico-Psychological Association at Philadelphia, in June. He also urged close cooperation between the three branches of neurology — neurologics¹, surgery, psychology, and psychiatry.

AN AMBULATORY CHAIR

BY FRANK G. NIFONG, M.D., F.A.C.S., COLUMBIA, MO.

It is our duty as physicians and surgeons more fully to recognize our obligations to our convalescent patients recovering from both injuries and illness and to see that they reach complete mental and physical restoration. This



Fig. 1. Illustrates the ambulatory chair and the patient entering the chair from the bed. It must be made of light, strong wood. It must not be too wide but freely pass through the average 2 ft. 8 in. of door. Length at bottom, 47 in.; width at bottom, 29 in.; length at top, 49 in.; width at top, 24 in.; height of seat, 16 in.

accords with our newer ideas of the duties of the state to those who have served us. We should each realize more fully this obligation to our individual patients and stay with them during what is often a most difficult and trying experience and help them to "carry on" to complete recovery. No device, suggestive, mechanical, or what-not, which may be helpful should be overlooked. Mental suggestion and all manner of encouragement are necessary to promote the more rapid restoration of the fever patient during his convalescence, and this should not be left to the unskilled. Those fractures and injuries of the lower extremities which necessarily have been treated in bed for a long time often leave the patient in a most deplorable state, which requires all the skill and patience of physicians and attendants if successful recovery is attained. After such injuries and protracted illnesses it is not only the emaciation and flabby muscles with which we must deal, but a mental state equally flaccid which must be overcome.

It is a proper estimate of the real condition of such a patient which we wish to emphasize and we desire to protest against the perfunctory prescription of a pair of crutches and such unskilled help in getting up and out as may by chance be available.

This weakened mental and physical state so analogous to that of a little child beginning to walk, has suggested the helpful appliance which I wish to present. It is simply a modification of the well known baby-walker adapted to the needs of such patients.

*From the Canadian Medical Association Journal.

Figure 1 fairly represents the device. It should be made of light, strong material preferably of hickory or ash, and of dimensions which allow passage through ordinary doors. The end opposite the seat should be open, as shown, so entrance from the bed may be easy.

The manner of walking and supporting the weight of the body partly by the arms is shown in Figure 2. At any moment, when the patient feels faint or tired, he may sit down, as shown in Figure 3. With four points of support in addition to his own legs the patient is very soon able to walk and even ascend and descend stairways with perfect safety.

Some very good reasons for the use of this chair and its adoption as a part of the armamentarium of well regulated hospitals might be given.

In the first place, it inspires confidence in the convalescent and cripple and quickly promotes self-reliance, which is such a necessary factor in hastening recovery. He soon goes alone and much more quickly than if he depended on attendants. He realizes that he is supported by a broad base and has no fear that he may fall. He sits down as soon as he is tired. He enters from his bed with ease and may be encouraged to take care of himself from the beginning of his efforts, which is so important psychologically.

In the second place, the patient needs much less assistance from attendants and very soon may do without them. This is not an unimportant consideration when convalescence may be a matter of weeks and months.

In the third place, there is no danger from disastrous falls, from pressure paralysis and consequent wrist drop so often seen in weak and emaciated patients who have tried to use crutches. It is well known how much delay in recovery is experienced when such an accident supervenes.

In presenting this rather simple device it is hoped to emphasize that the full duty of the physician to such patients is not discharged by prescribing crutches and leav-



Fig. 3 Sitting in an ambulatory chair.

ing them to their own fate, but that the obligation extends further and is not finished until the patient is helped to ultimate functional recovery.

SEEK MORE COMPLETE REPORTS ON COMMUNICABLE DISEASES

To secure the enforcement of state laws under which physicians are required to report cases of communicable diseases, and to better guarantee the active support of all members of the medical profession, a resolution was approved at the American Medical Association by the section which declares its attitude on the question in the following words:

"Resolved, That the Section on Preventive Medicine and Public Health of the American Medical Association recommend to the House of Delegates that it ask the constituent associations to consider the advisability of such amendments to their by-laws and to those of this Association as will eliminate from membership any physician who willfully fails or refuses to comply with local or state laws for the prevention of disease, including especially the provisions in such laws requiring the reporting of cases of communicable disease."

"The enforcement of such an amendment to the by-laws as here proposed," declares a writer in *Public Health Reports*, "would be of incalculable value to the public health movement. It would make it possible to bring delinquent physicians before a court consisting entirely of their peers. This would make the American Medical Association insist that membership in the Association depend on the faithful performance of the physician's duties not only to his patients, but to the public at large."

"Emerging from a period of war in which billions were spent for the destruction of human life, the saving of human life is the pre-eminent problem in restoring strength to a convalescent world."—Columbus (O.) Citizen.

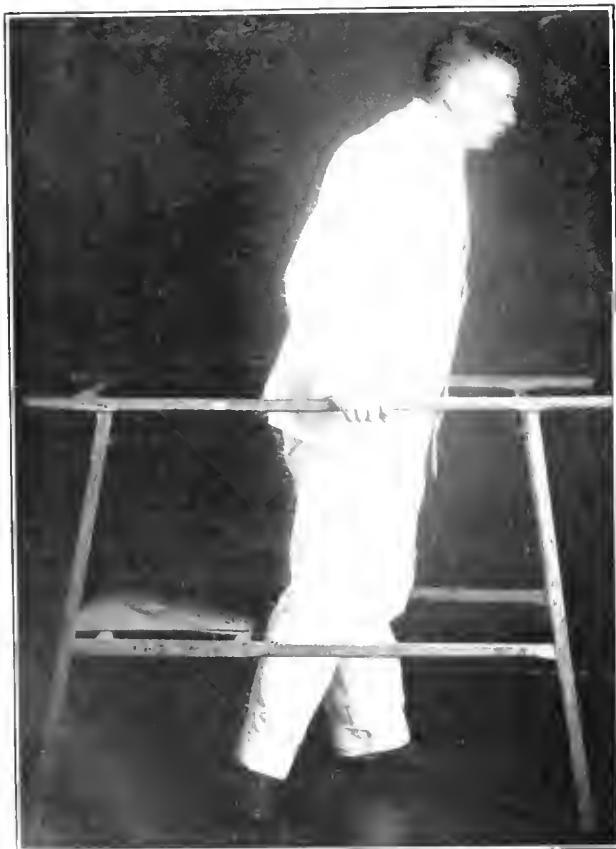


Fig. 2 Walking in an ambulatory chair.

THE MONTH IN MEDICINE

Survey of Current Medical Literature with Editorial Comment

WALTER W. HAMBURGER, M. D., Editor

REHABILITATION OF THE DISABLED HEART

IN THE Proceedings of the New York Conference on Hospital Social Service for 1912 Mrs. William K. Draper presented a committee report on "The Value of Industrial Training for Chronic Cardiac Cases," in which report she divides "cardiacs" in three groups:

(1) Cardiacs who can continue to be breadwinners; many even resume their former occupations.

(2) Another large class as well able to continue to be breadwinners as the former, but wholly unable to resume their former occupation. They should be wisely directed and given an opportunity to learn the trade it is thought they can work at without injury to themselves.

(3) A third class, whose cardiac power has been more nearly exhausted; though they cannot do continuous or hard work, through some form of light occupation they might still be partially self-supporting. For these cases an employment bureau could be of more service.

In conclusion, the Committee recommended the establishment of a training school for certain cardiac cases such a training school to have in connection with it an employment bureau.

The following year, Dr. N. Gilbert Seymour presented a committee report "On the Convalescent Care of Chronic Cardiac Cases." This Committee divides the problem into three component parts:

(1) The providing for a suitable convalescent home, to provide bed, rest, and care for the prolonged convalescence of an acute heart attack and to provide opportunities in which to study the patient, not only his physical capacity for work, but his mental make-up and limitations, so that an occupation might be selected for him which would really be suitable, both to his heart and to his mind; and that during the latter part of his convalescent period the patient might be trained in the occupation so selected.

(2) The question of industries suitable for these cardiac cases, and to report upon those deemed practical, with the estimated cost of teaching and equipment.

(3) How and where to employ cardiac patients, once taught, when their period of convalescence and industrial probation is done. Also, how to market the products of their work.

As a result of this report, a convalescent cardiac home was selected at Sharon, Conn., and was opened in July, 1913, as well as the Trade School for Cardiac Convalescents. At Sharon the patients were to be resident at the home for several months during which time they were under treatment and learning the trade of cement flower pot making.

In 1915 Dr. Seymour presented a final report on the "Sharon Cardiac Experiment." Summarizing the work is the following conclusion:

(1) Protracted convalescent care under select medical supervision is essential. The duration should be determined by individual improvement. The average will be between four and five months.

(2) Industrial training during convalescence has a therapeutic as well as an economic value. There was a marked contrast between the progress of the early patients before the industrial work was established and that of the late ones who have had the benefit of the work as occupation.

(3) As long as the number of patients must be limited, they should be selected from the group most in need of this special care, *i. e.*, adult males with moderately severe heart disease and laborious occupations.

(4) We may claim to have demonstrated two of our three propositions. We can now confidently state that chronic cardiac cases can be taught a suitable trade and can keep well while they pursue it in a suitable environment and under proper restrictions. We have yet to demonstrate that they can be made wholly self supporting in such employment, and we have not yet discovered more than one suitable industry.

Meanwhile, what was two years ago a problem of medical social science has now become, through the operation of the Workmen's Compensation Act in this state, a civic problem of tremendous significance. We recognize the fact that our constitution, whatever its value, can solve but a fraction of the great cardiac problem which is second only to tuberculosis in its magnitude.

In the discussion which followed Dr. Seymour's report, Dr. Guile described the work of the Cardiac Clinic at Bellevue Hospital with the co-operation of the Social Service Bureau for the purpose of determining just what could be accomplished by the medical and social after-care of discharged cardiac cases.

This clinic is held once a week on Friday evening, the case is carefully studied both from the social service and the medical aspects in an endeavor to determine where the man's life has been at fault in the past. Almost invariably the occupation is found entirely unsuited to the physical requirements of the individual, and it is on the solution of this highly important problem that the success of this entire enterprise depends.

It is not difficult to determine what the patient can do, but it is a very different matter to find work that the individual can do without harm to himself. It is for that reason there is the need of a social service worker who is able to make an intensive study of this phase of the problem. Not infrequently it is found that upon investigation that an occupation which at first seemed ideal in truth proved to be most injurious. Again, it has been possible to make slight changes in a patient's work without necessitating his seeking other employment. The social worker has often found a desire on the part of the employer to cooperate.

"A few of the various duties of the social worker consist in investigating the home conditions of its patients, the number of stairs to be climbed, the amount of work done at home, how it can be made less. She follows up cases to see that patients attend the clinic regularly, and that the physician's orders are carried out.

"Many cases that have been on the verge of a break in their compensation have been tided over this crisis safely by a timely rest at home in bed. Other cases, since a change in occupation has been made, have had practically no symptoms referable to their hearts, and have become active wage earners once more."

"We have subdivided our cardiac cases into three groups:

"(1) Slight valvular defects, where reserve strength is scarcely impaired.

"(2) Serious cases who may or may not have

had one or more serious breaks in compensation.

"(3) Hopeless cases with practically no reserve strength."

Dr. Guile concluded that the plan as outlined in the Bellevue Cardiac Clinic would probably be the better for the vast majority of cardiacs; he considered the Sharon Trade School plan too expensive, and of limited use as it is able to care for only a small percentage of those requiring help.

Dr. Alexander Lambert coincided with the views of Dr. Guile; he spoke of the desirability of the establishment of a number of similar cardiac clinics to keep these patients in "cardiac equilibrium" and to this end he regards the social service worker as important as the physician.

Dr. Brush, superintendent of the Burke Convalescent Home at White Plains, which superseded the Sharon Cardiac Home, agreed with Doctors Lambert and Guile, and emphasized the value of special cardiac clinics and cardiac social service.

"Thus the larger, surer success for the cardiac society," he said, "seems to appear ahead in the dispensaries and social service departments of the cities."

As a result of these earlier studies in cardiac convalescence the development of cardiac classes, cardiac clinics, cardiac social service, etc., has grown apace. The Association for the Prevention and Relief of Heart Disease, organized and incorporated in New York in 1916, gives needed recognition in concrete form of the magnitude of the heart disease problem. The increasing medical, economic, and social bearings of this great question are coming to be recognized as of first importance.*

Kahn,[†] in a report and analysis of the female medical clinic at the Mount Sinai Hospital Dispensary in 1916, advocated a special clinic for cardiac cases in order to introduce educational and supervisory methods in phases of cardiac therapeutics, particularly for the early and milder cases of heart disease.

Peter Bent Brigham Hospital,[‡] Boston, started a cardiac class in July, 1915, "for the purpose of giving more individual attention to cases of cardiac disease than was otherwise possible." In the 1917 report of this hospital is found this statement in the discussion of the cardiac class: "We feel more and more convinced that in spite of the satisfaction it gives to do for older people, that those patients between twelve and forty years, with the emphasis of those under twenty, are the ones who will best repay our efforts."

*The Modern Hospital, October, 1916, vii, No. 4, p. 357.

[†]New York Med. Jour., 1916, No. 18, p. 1,000.

[‡]Peter Bent Brigham Hospital, Boston, 1911, Second Annual Report.

Miss Frances S. Thomas* has published an interesting resumé of the work of the Bellevue Evening Clinic for Cardiacs. The outlines the social phase of such work in the following terms:

"The home investigation of cardiac cases which follows the patient's first visit to the clinic brings out much,—unnecessary distance of home from work, prohibitive stair climbing, unhealthy or noisy surroundings, lack of recreation, over-crowding, under-nourishment, domestic worries, etc. Special care is given to vocational guidance and industrial adjustments. We make an effort to provide educational training for promising boys and girls between the ages of thirteen and twenty-four years of age. There are others who are able to fit into ordinary occupations if they are given vocational training. For the women there are dress making, designing, millinery, manicuring, lamp-shade making. For the men, in addition to basketry and pottery and other handicraft work, are also suitable jewelry making and repairing, toy making, and weaving. We believe patients between the ages of twenty-two and thirty may be placed in positions as watchmen, switchboard operators, doormen, elevator runners, etc."

Cardiac clinics are also being established in the West Barnes Hospital, St. Louis, Central Free, and Michael Reese Dispensary, Chicago, and one is contemplated at Cook County Hospital. The theory and practicability of these clinics have been demonstrated. All that is now necessary is to see them in operation and thus salvage many of these disabled heart patients. The return whether in the conservation of happiness, economic efficiency, industrial productivity, or self support for the individual and the family, may confidently be expected to be very large.

The following may be taken as an illustrative case; although extreme, it is nevertheless typical.

A. Z., man, age 64 years. He gave a history of acute rheumatic arthritis at the age of 22 years. The first cardiac trouble noted began with decompensation in June, 1916, when he came to the hospital for the first time. In the three years since he has returned eighteen times with cardiac decompensation, the average duration of each period in the hospital being three weeks. His occupation is that of putting lumber into a planer. He is compelled to stand all day at his work, often having to lift pieces of lumber weighing from 150 to 200 pounds. He is able to work two or three days and is then compelled to rest two or three days.

His hospital record is appended for the purpose of showing the needless waste of human material if rational management of the work and habits of such cases is not provided for. The expense of hospital and medical service, and loss of time,

when proper hygienic measures cannot be applied, in the aggregate far exceed the cost of adequate care.

HOSPITAL RECORD OF A. Z.—CARDIAC DECOMPOSITION

Date of entrance	Date of discharge	Duration of hospitalization (days)	Length of time outside hospital (weeks)	
			6 entrances	Average duration
1916 June 13	.....	28	4	
1916-1917 .....	.....	20	6	
1917 Oct. 23	Nov. 4..	12	7	
1918 Jan. 30	Feb. 18..	20	3	
Mar. 8	April 1..	24	5	
May 4	May 20..	16	3	
June 11	June 22..	12	4	
July 20	Aug. 13..	24	3	
Sept. 3	Sept. 16..	14	10	
Dec. 7	Dec. 21..	15	4	
1919 Jan. 20	Feb. 24..	35	5	
April 2	April 9..	7	4	
May 9	May 14..	5	4	

Total hospital entrances 18
Average duration of each hospitalization 3 weeks
Average duration of each interval outside of hospital 5 weeks*

WAR NUMBER OF AMERICAN MEDICINE

The June issue of *American Medicine* is a special war number featuring an article by Merritte W. Ireland, M.D., Surgeon General of the Army, on "Activities of the Medical Department of the United States Army During the War."

Salutations to the members of the medical profession who served their country in the war, at the front and in the United States, are presented by Secretary of War Newton D. Baker, Secretary of the Navy Josephus Daniels, General Pershing, Surgeon General Ireland, Surgeon General William C. Braisted, William C. Gorgas, Surgeon General, retired; Major General Leonard Wood, M.D.; Colonel Franklin Martin, M.D., Medical Corps, chairman of the committee on medicine and sanitation of the Advisory Commission, and chairman of the general medical board of the Council of National Defense; Lieutenant-Colonel W. J. Monaghan, M.D., Medical Corps; and Theodore Roosevelt, Lieutenant Colonel, retired, U.S.A.

An account of "Medical Activities of the United States Navy Under Admiral Sims' Command" written by Henry Reuterdahl, Lieutenant Commander, U.S.N.R.F., appears in the June issue.

American Public Health Association

The dates for the forthcoming session of the American Public Health Association, at New Orleans, will be October 27 to 30. The meeting will take place at the Grunewald Hotel. Information will be supplied upon request to the executive secretary, A. W. Hedrick, 169 Massachusetts Avenue, Boston, Mass. The president of the Association is Lee K. Frankel, vice-president of the Metropolitan Life Insurance Company of New York.

American Society of Tropical Medicine

Officers were elected at the meeting of the American Society of Tropical Medicine at Atlantic City, during June include Henry J. Nichols, Lieutenant Colonel, Medical Corps, United States Army, president, Washington, D. C.; Dr. John M. Swan, vice-president, Rochester, N. Y.; Dr. Carl F. Meyer, vice-president, San Francisco, Cal.; Dr. Sidney K. Simon, secretary and treasurer, New Orleans, La.; Dr. Allen J. Smith, assistant secretary, Philadelphia, Pa. New Orleans was selected as the location of the next annual meeting, which will be held in connection with the meeting of the American Medical Association in 1920.

*Thomas, Frances S.: Heart Disease as a Problem for the Hospital Social Worker, Proceedings of the New York Conference on Hospital Social Service, 1918, Sup. No. 1.

COLLECTIVE ABSTRACT—THE CAUSATION OF CANCER—OLD AND NEW THEORIES

BY J. RAWSON PENNINGTON, M.D., F.A.C.S., CHICAGO*

IT is not the intention to consider in this paper all the causes which have been invoked to explain the origin of malignant disease, but merely to glance at a few—especially several by laymen. It would be a striking example of poetic justice if one of them were fortunate enough to light on the cause, as did Schaudinn for that of syphilis.

Ehrlich once stated that the cancer problem will be taken by assault, but Gaylord¹ in his address before this very society, expressed the belief that it will be broken up into a great field, requiring many years of patient work of many investigators. This was barely four years ago, and "many years of patient work by many investigators" had already been done, though it is rather discouraging to think that we are not much nearer the cause than in the days of humoral pathology. Indeed, Ewing² doubts whether we shall ever have more than a descriptive knowledge of the ultimate nature of neoplastic overgrowth.

Parasitic Origin of Cancer

We may begin with the parasitic theory which is by no means new; for as long ago as 1801, Adams, of England, attributed malignant disease to what he dubbed "carcinomatous hydatid." Andrewes³ points out an insuperable objection to this theory. These growths are of limited inocuability. This would seem logically to involve for each species liable to cancer a private and particular variety of parasite incapable of producing cancer in any other sort of animal. "Such a view is incredible in face of the close resemblance between the growths in different vertebrates."

Both vegetable and animal parasites have been incriminated. Welsh⁴ remarks: "The resemblance between the invasion of a cancer and other infective processes which have been compelled to yield the secret of their origin fostered the expectation that the cause of cancer also would be found in some form of microbe." The enthusiasm excited by the discovery of the tubercle bacillus led to search for microbes in tumors also, and one of the most noted microbial causes in its day was Scheuerlen's⁵ bacillus which proved to be a common variety, growing freely on sliced potato. The latest claimant was the *Microcoecus neo-*

formans of the late E. Doyen, of Paris, which, with its serum, is now solely of historic interest.

Several of the protozoa—those lowly organisms on the borderline between the vegetable and animal kingdoms—have been held responsible as well. So far back as 1891, bodies resembling microsporidia, one of the sub-classes of protozoa, were found in tumors and were likened by Pfeiffer,⁶ the authority on the protozoa, to plasmodiophora brassica—belonging to the subclass and living in the roots of cabbages, beets, etc. Somewhat recently (1905) Robertson and Wade,⁷ in England, claimed to have discovered this same organism in cancer and to have been able to grow it from fresh carcinomatous tissue.

The "golden-yellow organisms" of Schuller,⁸ turned out to be cork-cells from the material used in mounting the specimens. This explains why he discovered them in sarcomas, likewise in carcinomas. Though Myxosporidia, another subclass, are supposed to be found only in cold-blooded animals, the late Professor Jaboulay,⁹ of Lyons, was confident at one time that they were the cause of tumors, cancerous and otherwise.

There is no need of enumerating all the alleged parasites, but some mention must be made of transmissible tumors which afford considerable evidence in support of this hypothesis.

In 1911, Rous¹⁰ announced the finding in the domestic fowl of a sarcoma transmissible by the filtrate. The original tumor was markedly malignant as proved by its structure and by producing extensive metastases. The filtrate made cell-free by passage through a filter produced similar tumors by inoculation, though they increased much more slowly than by direct implantation. It also gave rise to metastases. Rous suggested transmission is either by (1) some minute parasite or (2) chemical stimulus. Since then he has found others, all sarcomata.

At one time it was debated whether such transmissible or transplantable tumors were true neoplasms or not, but Ewing² decides they are malignant tumors with certain peculiarities impressed

¹ Gaylord, H. R.: *Jour. Am. Med. Assn.*, March 20, 1915.

² Ewing, James: *Jour. Cancer Research*, January, 1916.

³ Andrewes, F. W.: *System of Medicine*, Allbutt-Rolleston, London, 1905, i, 627.

⁴ Welsh, D. A.: *Scot. Med. and Surg. Jour.*, June, 1906.

⁵ Scheuerlen: *Deutsch. med. Wchnschr.*, 1887, p. 1033.

⁶ Pfeiffer, R.: *Die Protozoen als Krankheitserreger*, Jena, 1891.

⁷ Robertson and Wade: *Lancet*, London, January 28, 1905.

⁸ Schuller, Max: *Centralbl. f. Bakteriol.* 1900, xxvii, 511.

⁹ Jaboulay: *Lyon Med.*, September 17, 1905.

¹⁰ Rous, Peyton: *Jour. Exper. Med.*, April, 1911.

on them by the species. They have been observed in the mouse, rat, hare, dog, and chicken; and Jones¹¹ has recently added the guinea-pig.

We pass on to a consideration of "cancer-areas" and "cancer-houses," both urged in support of the parasitic theory, the argument being, of course, that the causal organism is resident in such areas and dwelling places.

Haviland,¹² in 1875, plotting the cancer deaths of females in England and Wales, concluded that in these countries, the highest mortality is found along the lower courses of rivers flowing through lowlying valleys and which overflow at high water. He elaborated on this a few years later and instanced the Thames valley as a marked example. His original essay was promptly challenged by Hirsch,¹³ who in his celebrated work stated it could not hold good generally; in Norway, for example, cancer is found principally at considerable elevations and in the mountainous districts.

Leamington, in the county of Warwick, England, is on a small stream which empties into the river Stour. Mason,¹⁴ after investigating 400 cases there, thought the ultimate cause will prove to be a germ, the habitat of which is a subsoil contaminated by sewage, and that it gains access through one of the mucous orifices of the body.

Urquhart,¹⁵ several years ago, corroborated Haviland's conclusion as to the Thames valley; all the districts immediately bordering on the river show a rate above the average for the whole of England. As the high rate is uniform on both banks, it suggests there may be a connection between the floods in the river and the cancer incidence, though exactly what, is not easy of explanation. Presuming cancer to be of parasitic origin, the drying vegetation left on the banks after floods may form a favorable soil for growth of the parasite.

Some further evidence on this point comes from far off New Zealand. While the mortality in general is the lowest in the world, the percentage of cancer deaths increased from 64 per 100,000 living in 1898, to 73 in 1907, according to Hislop and Fenwick.¹⁶ The former had occasion to treat 31 cases, some 6 of whom lived in the same house though not blood relations. The area was a flat district lying between a snow-fed river and a small stream, a large proportion being flooded every season.

Gordon and Thompson¹⁷ have recently furnished some negative evidence. Of the adjoining districts of Camelford and Launceston, in the Duchy of Cornwall, the first has one of the lowest death rates in all England, and Launceston one of the highest in the southwest part of that coun-

try. They plotted all deaths during a ten-year period. Since it has been claimed that cancer is relatively common in low clay levels along rivers which flood their banks, relatively uncommon on limestone, prone to occur among trees, and to recur in the same house, all these points were investigated. They found no special tendency to follow rivers except as the houses follow them; nor any influence from the underlying rocks. Neither did they find any particular prevalence in wooded districts or single houses. On the other hand, they observed a marked tendency to "pockets" of cancer districts, though it is uncertain whether these are due to chance or not.

Bertillon¹⁸ also described an enormous "cancer-area" which is referred to later on.

America is not to be outdone and is able to report "cancer-areas," as might be predicted in the older settled portions of the country, where the conditions of living approximate those of Europe. An example is narrated by Tynes,¹⁹ from Fisherville, Pa. His practice averages about 265 families, and there were in 9 years 105 deaths. Eighteen, or 17 per cent, were from cancer. Brooklyn, possibly the most celebrated "cancer-area" in the United States, with a population of two and one-half times as much as Fisherville, had but 9.7 per cent of deaths, nearly 9 per cent less than in Fisherville. Neither heredity nor consanguinity was an important factor.

Tynes gives further details of what he regards as the strongest evidence of the infectious character of cancer. In a city nearby, within six years there were 10 deaths from malignant disease in a sharply defined area not much larger than a city block. In fact, 5 cases not only occurred in the same street and the same block, but in five adjacent houses, and the rest close by. Case 1, making 11 deaths in all, developed cancer fifteen years before any of the others. She lived at the highest spot in the vicinity, and the drainage from her house was directly down grade and into five other houses in which cancer developed later. Only three persons were related, and they were sisters and a son. Here, also, a history of heredity was lacking.

So much for "cancer-areas." As for "cancer-houses," while the occurrences about to be mentioned are probably fortuitous, they are striking, nevertheless. In a hamlet in Shropshire, Eng-

¹¹ Jones, F. S.: *Jour. Exper. Med.*, February, 1916.

¹² Haviland, Alfred: *Geography of Heart Disease, Cancer, and Phthisis*, London, 1875.

¹³ The Geographical Distribution of Disease in Great Britain, Second Edition, London, 1892.

¹⁴ Hirsch, August: *Handbook of Geographical and Historical Pathology*, New Sydenham Society, London, 1884-1886.

¹⁵ Mason: *Brit. Med. Jour.*, January 18, 1902.

¹⁶ Urquhart, A.: *Brit. Med. Jour.*, April 4, 1904.

¹⁷ Hislop and Fenwick: *Brit. Med. Jour.*, October 23, 1909.

¹⁸ Gordon and Thompson: *Brit. Med. Jour.*, August 30, 1913.

¹⁹ Bertillon, Jaques: *Presse méd.*, May 13, 1911.

²⁰ Tynes, A. L.: *Jour. Am. Med. Assn.*, March 21, 1908.

land, with twenty cottages, 9 cases of cancer occurred in 15 years, according to Webb.²⁰ Though none of the patients were blood relations, all villagers used water from a roadside pump.

Power²¹ relates 3 deaths of domestics in the same dwelling: Miss B., aged 45, had lived in the house for thirteen years and died from gastric carcinoma in 1884. Miss T., who had lived there for twenty years, at the age of 47 succeeded to the position held by Miss B., and occupied the same bedroom. She died the following year from cancer of the liver. Miss J., who had also resided in the same dwelling for twenty-eight years, followed Misses B. and T., in the same bedroom, and succumbed to malignant growths in the breast and uterus in 1893. None of these women were related, and all appeared to be perfectly healthy when assuming the position.

During the discussion of Gordon and Thompson's paper, Ackerly²² said in Ashburton, in the southern part of Devon, he found an undue prevalence of cancer in the houses along a certain stream, in one, three successive occupants, not blood relations, developed carcinoma. In Surbiton, in the county of Surrey, he knew of four instances where, in the previous thirteen years some eight or nine individuals, long resident in the houses, succumbed to cancer. He suggested investigating the rats in such houses.

Another typical "cancer-house," and this time from Wales, is related by Simons.²³ It is old, and so large it had sometime before been divided by a wall. Under this roof there were 5 deaths in twenty-one years, and but 2 were blood relations. This house is on the side of a stream which, though often swollen by floods, is not sluggish, but the subsoil is often saturated.

An ingenious suggestion is made by Lazarus-Barlow,²⁴ namely, that the greater frequency of cancer in certain houses or districts may be accounted for by the presence of some radioactive substance in the soil itself or the material of which houses are built.

The explanation offered by Rosenfeld²⁵ for "cancer-houses" is that they are in poor repair, hence patients, on account of their poverty, dwell in them; but not all such houses are dilapidated, for Chapman²⁶ saw three cases in a fine mansion standing in large grounds; while Fabre²⁷ quotes a case from Molière: "In a well built house at Lyons on the banks of the river Saone, there were four deaths from cancer in ten years, and none from any other cause."

We come now to a much debated cause for malignant growths as well as many other conditions—heredity.

Probably the most marked instance of this alleged factor is the family alluded to by Broca.²⁸ This, it will be remembered, concerned a mother and four daughters, all of whom died of cancer; and of eighteen grandchildren, eleven succumbed to cancer. Whiteford,²⁹ recording a case of "conjugal cancer," furnished another striking instance of family incidence: the wife's father, two brothers, three aunts, and two cousins, all died from cancer.

In 1890, Arnaudet³⁰ claimed that cancer is much more frequent in Normandy than in Paris. A committee was formed, and after due investigation reported that while cancer was unduly prevalent in some remote villages, and which they believed due to inbreeding and heredity, still in Normandy as a whole, it is no more frequent than elsewhere in France. This point is referred to later by Bertillon.

During eighteen years, Warthin³¹ examined some 1,600 carcinomas, proved such by histological examination. Complete records of four families were available, and the incidence in them is so striking that, according to him, it can be interpreted as showing an inherited susceptibility. He believes also there is a marked susceptibility in certain generations and family groups, associated with an equally marked susceptibility to tuberculosis, and with reduced fertility. In a family generation the occurrence of multiple carcinomas practically always means that they have occurred in a preceding generation. Moreover, the family tendency is naturally more marked when carcinoma is found on both sides.

However, cancer is so widespread that there must be very few families whose near or distant relatives have not been affected. In fact, Snow³² in 1,075 cases of malignant diseases, including 57 carcinomas, found a history of cancer in the parents in 15.7 per cent; yet of 78 individuals in perfect health, the family incidence was 17 to 19 per cent.

Gneinatz³³ obtained similar results. Of 210 cancers, there was a history of heredity in 18; of 166 benign tumors, a cancerous heredity was given in 11; lastly, in 103 adults without tumors of any kind, there was cancerous heredity in 12. A series of 500 males with cancer of the tongue,

²⁰ Webb, T. Law: Birmingham Med. Rev., 1892, p. 342.

²¹ Power, D'Arcy: Brit. Med. Jour., 1894, i, 1240.

²² Ackerly, R.: Brit. Med. Jour., August 30, 1913.

²³ Simons, R. J.: Brit. Med. Jour., January 30, 1908.

²⁴ Lazarus-Barlow, W. S.: Brit. Med. Jour., June 26, 1910.

²⁵ Rosenfeld, S.: Wien. klin. Wochenschr., September 11, 1913.

²⁶ Chapman: Brit. Med. Jour., 1894, i, 1302.

²⁷ Fabre, J.: *De la Contagion du Cancer*, Thèse de Lyon, 1892.

²⁸ Broca, Paul: *Traité des Tumeurs*, Paris, 1866-1869.

²⁹ Whiteford, C. H.: Brit. Med. Jour., 1910, i, 1411.

³⁰ Arnaudet: Normandie méd., 1890, iv, 33.

³¹ Warthin, A. S.: Jour. Am. Med. Assn., November 29, 1913.

³² Snow, Herbert L.: *Clinical Notes on Cancer, etc.*, London, 1883.

³³ Gneinatz: Quoted by Menetrier.

etc., and of 500 females with mammary cancer, at the Middlesex Hospital, London, was investigated from this standpoint by Hill and Tritsch³⁴ and they found that 14.6 per cent of the males, and 7.8 per cent of the females gave a history of heredity.

Menetrier³⁵ estimates that a history of heredity will be given by about 13 per cent of all subjects with cancer. DeBovis³⁶ states that the percentage of cancerous heredity in the Belgian, German, and Dutch collections of statistics in 16.6, 17, and 18.1, respectively. All the foregoing relate to cancer in general, visceral or otherwise, but for squamous-celled epitheliomas alone, Hueriaux,³⁷ of 563 cases under his care, tells us there was a history of heredity in 10.75 per cent.

Before leaving this phase, attention may be drawn to Miss Slye's³⁸ researches on heredity in mice. Since these animals were living under artificial conditions, and since we know so little of life processes in such short-lived creatures, the findings, while interesting, should be accepted with some reservation when discussing cancer of human beings. After an experience with 5,000 individuals, the results show cancer to be hereditary in the strict sense. The common laboratory infections spread through a given cage as well as to adjacent cages; not so with cancer. When an infected mouse dies and is devoured, every mouse in the cage is liable to be carried off by the same infection; this never happens with cancer. Cancer differs so inevitably that it can be manipulated—can be put into a strain, can be extracted out, or can be bred out of a line one side of which carried 100 per cent of cancer originally. Finally, cancer is not transmitted as such, but rather as prone to follow a given provocation, probably in the form of over irritation.

Is Cancer a Constitutional Disease?

The older authors looked upon cancer as the local manifestation of a constitutional disease, a view resurrected recently. Consequently, they propose to treat it by systemic measures—witness mercury by Boerhaave early in the 18th century; and hemlock by Stork later on. Early in the last century, the day of indiscriminate bleeding for every disease in the nosology, venesection was used by Broussais, that "prince of bleeders," and others.

From this viewpoint it was but a step to attribute malignant tumors to various constitutional disturbances. Thus, in 1899, Behla³⁹ gave as his opinion that cancer is a parasitic disease which may be propagated in like manner to malaria. Both these affections bear some relation to damp and marshy conditions. This, it will be noted,

was after the malarial plasmodium was discovered. The following year he enlarged on this view, stating that the water of stagnant ponds or ditches which have forests or undergrowth on their banks is suspicious, and such water with great probability may be regarded as the bearer of the germ. Where cancer is "endemic," it is advisable that only boiled water be used for drinking, for washing domestic utensils, or to water gardens. Since cancer may also be derived from vegetables, salads and raw vegetables must not be washed with water unless boiled.

Boiling water as a prophylactic is also recommended in a pamphlet recently issued by a San Diego physician. He believes that the disease is due to water-borne parasites, and recites the usual arguments. Hence douches convey the germ to the uterus, and so on, though the gynecologists tell us some women go through a long life without ever knowing what a vaginal douche is. The Japanese form a stumbling block to this theory, for the author admits they bathe excessively, yet are little subject. This is accounted for by the fact that only hot water is used for baths, etc.

As a matter of fact, the cancer mortality in Japan is as high as in several European countries. This theory should explain the infrequency among the Eskimos. The anecdote may be recalled of the individual of that race who was given a cantharides blister, which had no effect, for it did not penetrate the various strata of dirt and never reached the skin.

In 1901, Löffler⁴⁰ proposed to treat cancer with injections of blood from malarial patients. Malaria and cancer are mutually antagonistic. Malaria is most prevalent in the tropics, and as it gradually lessens toward the poles, cancer increases, due to the fact that the natives in tropical countries have at some time in life been affected with paludal infections of severe type. Coming from the co-discoverer of the diphtheria bacillus, this is surprising. One of the most malaria-infected spots on the globe is Italy, especially the notorious Campagna outside Rome, yet, as Bertillon, and also DeBovis, show, cancer is rare.

Kieffer,⁴¹ after extensive investigations in Cuba, comes to the conclusion that there is no real antagonism between malaria and cancer, and that the source of malignant disease is not modified by the occurrence of malarial infection in can-

³⁴ Hill and Tritsch: Arch. Middlesex Hosp., Cancer Research Lab., 1902, ii, 104.

³⁵ Menetrier, P.: Le Cancer. In *Traité de Médecine et de Thérapie*, Gilbert-Thoinot, Fascic. 13. Paris, 1913.

³⁶ DeBovis, R.: Semaine méd., September 24, 1902.

³⁷ Hueriaux, A.: Arch. provinciales de chir., Feb., Mar., 1903.

³⁸ Slye, Maude: Interstate Med. Jour., July, 1915.

³⁹ Behla, R.: Ztschr. f. Hyg., 1899, xxii, 123.

⁴⁰ Behla, R.: Deutsch. med. Wchnschr., 1900, No. 45.

⁴¹ Löffler, F.: Deutsch. med. Wchnschr., October 17, 1901.

⁴² Kieffer, C. L.: Med. Rec., New York, April 27, 1907.

cerous subjects. He has had a varied experience in the tropics, and finds that malignant disease is relatively less frequent than in colder climes, though in this respect countries differ greatly.

One more systemic disease which has been thought to have some etiologic influence is rheumatism. Hislop and Fenwick,¹⁶ in their paper already cited, point out: "So many of the cases were rheumatic, and rheumatism was so prevalent in subacute or chronic forms in bush districts, that we can hardly ascribe the coincidence of rheumatism and cancer to accident." They likewise suggest: "It is not impossible to imagine that the circulation of the blood in rheumatic cases may act as a direct irritant to tissues." Bell,¹⁷ also, claims individuals with a tendency to rheumatism are more liable to cancer of the mucosa. He naturally advocates a non-operative treatment.

Tuberculosis and Cancer

The dictum of Rokitansky that cancer and tuberculosis are inimical to each other has proved to be unfounded, cases of each in the same subject being placed on record from time to time, though, to be sure, the association is not very frequent. While Landis¹⁸ states that of 633 necropsies at the Henry Phipps Institute, a very small percentage not being tuberculous, but one carcinoma was found in fifteen years, and that in patients free from tuberculosis, other institutions give a much larger proportion. Thus Lubarsch¹⁹ in 6,536 cases, found 4.4 per cent of tuberculous individuals were affected with cancer; on the other hand, 20.6 per cent of cancerous subjects had tuberculosis. Bang²⁰ in a series of 6,000 necropsies on tuberculous individuals, found 16 per cent of these had cancer as well; and Boinet²¹ in 800 necropsies, discovered cancer in 35, in 11 of which pulmonary lesions were present.

These figures are for the purpose of introducing the theory of McConkey²² who states that the older writers noticed the striking analogy between cancer and tuberculosis. Since 1882, no one seems to have suspected the tubercle bacillus. As a result of several months' investigation founded on this hypothesis, he is convinced this organism is the cause of cancer by reason of its well known effect of causing cell proliferation. In young and robust subjects, such proliferation is checked, as a rule, by an exudate of lymph as well as lymph cells, which surrounds the new growth and we have a tubercle; but in subjects whose reaction is not sufficient to hedge it in, a cancer is the result.

Syphilis, another member of the infective granulomata, has been incriminated by Curtis,²³ who writes that in the early nineties, among the patients treated for cancer he discovered some

with a symptom which he had demonstrated to be a clinical sign of syphilis, *e. g.*, the egg-skin eschar of the mouth and other mucosæ. He is warranted in the conclusion that syphilis is the real cause, because in the succeeding eighteen years he had found clinical evidence of syphilis in the majority of his cancer cases, and because antisyphilitic treatment improved all cases and even cured some when seen early.

Long ago Turenne²⁴ advocated counteracting the virus of carcinoma by inoculation with syphilis, and we believe even carried it out.

Within the last few months DePury²⁵ has given an interesting account of his experiences in Africa. In 1830 his grandfather emigrated to South Africa as a missionary among the BaSutos, a tribe of Zulus, living near what was afterward the southern part of the Orange Free State. His father became a medical missionary, and in due time DePury himself, fifty years after his grandfather's arrival. In the meantime the habits of the natives had undergone great changes. The communal system with polygamy had given way to monogamy through the efforts of the missionaries. Moreover, the discovery of the diamond and gold mines, with an influx of adventurers from all parts of the globe, led to the introduction of syphilis, which was rapidly spread by the young men of the tribe who worked at the mines long enough to get a start in life.

Our author, who saw several thousand patients in a year in his dispensary, was soon struck with the absence of malignant disease among the natives though occurring in Europeans, and mentioned this to his father. The latter replied: "There is no cancer among the BaSutos; I have been searching for it in vain for twenty-five years." At length DePury saw adenocarcinoma and those rapidly-developing neoplasms which affect principally young individuals with hereditary or acquired syphilis.

A few months after the Boer war he visited the hospitals in his vicinity, and the testimony was unanimous that while syphilis was diminishing in intensity, probably on account of the total syphilization of the race, carcinoma was becoming more and more common. Moreover among the BaSutos cancer affects principally individuals from thirty to forty, rarely those over fifty. The most common forms were the glandular type—adenocarcinoma of the liver, of the bones, and of

¹⁷ Bell, Robert: *Cancer, Its Cause, and Treatment Without Operation*. London, 1913, 49.

¹⁸ Landis, H. M.: Quoted by Hoffman.

¹⁹ Lubarsch: Quoted by Lapeyre, *Presse méd.*, April 11, 1914.

²⁰ Bang: Quoted by Lapeyre, *Presse méd.*, April 11, 1914.

²¹ Boinet: Quoted by Lapeyre, *Presse méd.*, April 11, 1914.

²² McConkey, T. G.: *New York Med. Jour.*, December 19, 1908.

²³ Curtis, G. L.: *Med. Rec.*, New York, July 4, 1908.

²⁴ Auzias-Turenne, J. A.: *La Syphilization*, Paris, 1878.

²⁵ DePury, G. A. C.: *Paris méd.*, January 19, 1918.

the large lymph nodes. Thus in less than half a century an admirably healthy tribe, of magnificent physique, with almost patriarchial customs, as a result of European influence, acquired first syphilis, then cancer, and lastly tuberculosis. A fine example, he remarks sarcastically, of the benefits of civilization.

The author is now in charge of a French military hospital, and quotes Jaboulay, who asserted that any patient developing cancer before the age of twenty-eight was syphilitic. He then had under his care an officer who showed the close relation between syphilis and cancer. The great-grandfather was syphilitic, and died at the age of fifty-eight from cancer of the stomach. His wife, probably infected by him, also died from cancer at the same age. The grandfather, likewise syphilitic, died at fifty-eight from lingual carcinoma, and the grandmother from cancer of the breast at almost the same age. Thus fifty-eight years was generally the fatal age, though the father is now sixty. He likewise is syphilitic, obese, weighing 242 pounds, and is diabetic. The officer himself was syphilitic, entirely bald at thirty-three. The father, from whom the genealogic details were gleaned, stated other members of the family died from cancer, and pithily observed: "With us everybody is either cancerous or syphilitic."

DePury firmly believes not only that syphilis favors the development of cancer, but that the hereditary form is the fitting soil, admirably prepared and predestined, so to speak, to a fatal cancerous degeneration. In conclusion, he remarks it is curious that of the three great plagues which in Europe since the sixteenth century seem to follow and complement and serve as lures for one another, two should be of parasitic origin, the other not.

If there is any foundation for the theory of the syphilitic causation, striking confirmation should be had from the Pacific Islands, which have been a hotbed of syphilis for considerable over one hundred years, as a result of the visit of whaling vessels. Both negative and affirmative evidence is to be had. Kieffer⁵¹ quotes Robertson as stating that cancerous disease is fairly prevalent in the Gilbert Islands, the inhabitants of which are darker than the Polynesians. At Fiji the admissions of the Colonial hospital for cancer in five years numbered four for native Fijians and one for Polynesians; 1.3 and 1.2 per 1,000 admissions respectively (Hoffman⁵¹). The Fijians also are much darker than the Polynesians. At Tahiti, of sixty-one major operations in two years, according to Ortholan,⁵² there was but one for malignant disease, and that was a sarcoma; though in the

Low Archipelago, not far away, of five deaths two were from cancer of the liver and of the uterus. In China, too, Jefferys and Maxwell state syphilis is met with from one end of the country to the other, yet cancer is not unduly frequent. Of 34,197 new cases in the Tung-Kuan hospital the percentage of malignant disease was only 0.5. While they operated on many cases, this is not to be wondered at considering the density of the population there. At any rate, cancer of the alimentary tract, from the cardiac end of the stomach to the last inches of colon, in their experience, is extraordinarily rare.

Kellert⁵³ records a veritable pathologic museum in a woman, aged thirty-nine, syphilis, tuberculosis, and cancer. It was thought the first was possibly eongenital, the tuberculosis comparatively recent, and the cancer (of the pharynx) probably the last to appear.

Before taking up the final section I propose to notice some more or less startling theories advanced by professional, as well as laymen:

It is just about half a century since Moore⁵⁴ claimed cancer is more common in the first-born, though pediatricians tell us the death rate from these in infancy is unusually high, owing to the inexperience of the mothers.

Professor Senn⁵⁵ states in his work on tumors: While mental anxiety may favor the origin of carcinoma by impairing nutrition and thus impairing the physiologic resistance of the tissues, we have no evidence that nervous influences exert a more direct effect. "It is different with dread or fear of carcinoma," he adds. "The writer recollects two patients who for no tangible reason whatever were in constant dread of the disease for many years, when finally their fears were realized. Apprehensions of this nature must certainly exert a positive influence on the etiology of carcinoma." The influence of mind on matter, indeed!

A French author, Noël,⁵⁶ finds certain contagious tumor-like growths are often to be found on the trees in districts with undue prevalence of cancer. He even thinks there is some etiologic relation between these tree "cancers" and the same tumors in man, for the latter are common in persons living in or near woods. . . . Insects have a special preference for the tree "cancers," and carry infection not only from tree to tree, but also propagate it through orchards in food for human beings. Mankind may be thus infected; and when the virus enters by the mouth

⁵¹ Hoffman, F. L.: *The Mortality from Cancer Throughout the World*, Newark, N. J., 1915.

⁵² Ortholan, M.: *Presse méd.*, June 26, 1906.

⁵³ Kellert, E.: *Jour. Am. Med. Assn.*, November 21, 1914.

⁵⁴ Moore, C. H.: *Brit. Med. Jour.*, 1865, xxviii.

⁵⁵ Senn, Nicholas: *The Pathology and Surgical Treatment of Tumors*, Philadelphia, 1895, p. 236.

⁵⁶ Noël, L.: *Rev. des Mal. cancéreuses*, 1896-7, 11, 137.

the resulting lesions are in the alimentary tract; the external parts, on the other hand, are involved by direct or contact infection. This theory would hardly account for uterine carcinoma. Moreover, he seems to refer to the galls on oaks and other trees; if so, they result from eggs laid by gall-flies, the resulting swelling serving as food for the larvae.

Stuart-Dow⁵⁷, a laryngologist, is responsible for a novel theory. Sufficiently impaired function of the thyroid leads to the tissues being waterlogged, so to speak, with mucin, and the establishment of myxedema. As he has never observed cancer and myxedema at the same time, he suggests an excess of mucin in the tissues may insure against both carcinoma and sarcoma. With thyroid overwork, there must be a lessening of the normal quantity of mucin, both in the tissues and on the surfaces, and he believes this "hypomyxia" is the true pre-cancerous condition.

Bashford⁵⁸ quotes a "distinguished surgeon" as anathematizing the bedclothes and the discharges from cancer patients as dangerous sources of infection.

The first production by a layman to be considered is that the embryologist Beard⁵⁹ of Edinburgh, who is a doctor, though of science, not medicine. His theory, which is his latest work, he informs us was first announced, for cancer in 1902, and for sarcoma in 1904, is that the "irresponsible trophoblast," as he is fond of terming it, is a sort of pathologic I. W. W., and runs wild like an opium-crazed Malay. The best way is to let him state his own case.

"At the critical period, the embryo, complete in all its parts, begins to nourish itself by an alkaline pancreatic digestion, and with a ferment known as trypsin. If this latter be wanting, the asexual generation, the trophoblast, may become a malignant tumor of the deadliest description; in its presence it becomes harmless and slowly degenerates. Clearly, then, since cancer is an irresponsible trophoblast, the ferment which brings about the degeneration of this in normal development ought to possess potency when directed against the cells of a malignant tumor."

While it must be confessed the development of chorionepithelioma appears to uphold his views it seems strange that the pancreas, which is to protect the body by secreting trypsin, should itself be attacked. As for the corollary of this theory, the trypsin treatment, Bainbridge,⁶⁰ gave it a thorough trial at the Skin and Cancer Hospital in New York City, and states emphatically it does not cure cancer.

It is amusing to note how the doubts which beset the profession as to the etiology of certain

diseases are airily brushed aside by laymen. Thus Russell⁶¹ takes us into his confidence long enough to impart the following:

"All countries or parts of countries which use much flesh, beer, tea, coffee, etc., have an increase of cancer. Every country not using these or other irritating substances in excess have little or no cancer. . . . Rheumatism and heart weakness are favorable to the growth of cancer, and these maladies are largely produced by excess of food, and of toxins, such as tea, coffee, alcohol, beer, etc."

He seems to attribute about equal importance to the influence of "toxins," as he calls them, and that of ingesting food at too high a temperature. In this connection he made some observations and discovered that the temperature of porridge was 163°, that of rice 168-176°, and liquids as well as solids are habitually swallowed at 120-170°, quite unbearable for the skin.

This recalls the observation of a medical missionary in China, Maxwell, I believe, that cancer of the esophagus and mouth is quite common there among the men, owing, he believes, to eating rice while quite hot; on the other hand, the women who eat later, after the rice is cool or even cold, are but seldom affected.

Green,⁶² of Edinburgh, describes himself as a "former student of medicine." A few years ago he published some papers which now appear in a booklet. In these he claimed cancer is due to some product formed during the burning of coal. He first took up Nairnshire, a county in the north of Scotland, which has the highest death rate in the country in the rural districts, while the town rate is normal. Of the four registration districts, the cancer deaths were: 57, 13, 15 and 1, respectively. This last was a rodent ulcer, in a patient aged eighty-one. The reason for the low rate he believes to be that only peat is burned. He claims malignant disease is unknown in Greenland, where only oil is burned, but this is not quite accurate, as will be seen.

Later he checked his results by similar investigations in the Orkney Islands. Here the fuel is either peat or coal or a mixture, since there are no forests. Now in the districts where peat only is burned, cancer accounts for one death in 42; where coal alone is used, the proportion is 1.9. However, he found three districts where the death rate was very high, though peat was the universal fuel. These results seemed unaccountable until the peat was analyzed when—though it

⁵⁷ Stuart-Dow, W.: *Lancet*, London, October 16, 1909.

⁵⁸ Bashford, E. F.: *Brit. Med. Jour.*, Dec. 9, 1905.

⁵⁹ Beard, John: *The Enzyme Treatment of Cancer and Its Scientific Basis*, London, 1911, p. 118.

⁶⁰ Bainbridge, W. S.: *The Cancer Problem*, New York, 1915.

⁶¹ Russell, Rollo: *Preventable Cancer*, London, 1912, p. 3.

⁶² Green, C. E.: *Edinburgh Med. Jour.*, October, 1912; August, 1913.

was supposed to contain no sulphur—it actually showed 1 per cent, considerably more than in many specimens of coal. Green believes cancer production hinges on the sulphur in the fuel. Sulphur dioxid must be given off when sulphur is burned, and it is some compound of the dioxid which sets up cancer. In this connection, though not exactly germane it may be recalled that many years ago Webb²⁰ proved that coal miners in England are practically immune to cancer.

The last layman whom we shall quote, as well as the latest, for his booklet appeared in 1917, is Lieutenant Colonel Hildebrand,²¹ late of the Indian Army. It is well known that retired Indian officials are peppery and our author is no exception, for, failing to have his theories accepted by the profession, they should be "carefully sifted by a Royal Commission composed of judges, directors of life insurance companies. I would suggest that no doctors or so-called experts be allowed to be members of the Royal Commission." His views are that cancer is caused by drinking unboiled and hard water, which in due time hardens the lining of the alimentary tract. Given this fibrous tissue, cancer may occur if radium lodges in it. The radium in turn is derived either from the rocks whence the hard water is obtained, from lead pipes, or the corroded surface of boilers, etc.

Lead is believed to be one of the end-products of radium, not its source. Hildebrand is by no means niggard with his theories, for another one is that bread made with yeast from fermented spirit renders the individual bad tempered, though if made from brewer's yeast, it soothes them.

Influence of Diet on Cancer

The large subject of diet has been left mostly to the last because the vagaries of some of its proponents can be better understood by what has gone before, and because this theory carries with it some subtheories which cannot very well be considered apart.

So far as diet is concerned, is it some excess as a whole, or of some particular article of food, or of some adjuvant or condiment? Here there is a decided discrepancy of opinion.

The investigation on apparently the largest scale was carried out in 1911 by Bertillon,²² the celebrated chief of the Paris Bureau of Statistics. He drew up a map of France, with two squares, each about one-third of the whole country. One, which embraces practically all of northern France, had a death rate two, three, or four times higher than the other on the south. The first much resembles the map showing the greatest consumption of alcohol, though Brittany, which is notorious for its excessive consumption, is outside. He

also points out that, generally speaking, countries bordering on the Mediterranean have about half as many cancer deaths as those further north in Denmark, Holland, etc.

Bertillon remarks that with so sharply marked a geographic distribution there must be a cause, a single one, which preponderates over the others; but this he was unable to discover. In Paris, the increase in mortality is only in cancer of the stomach and rectum. Cancer of the mouth and breast have not increased. Those of the female genital organs are even diminishing.

Therefore, the causes are special to the digestive tract, except the mouth. Is there some article of diet more used now than formerly which causes the increase? Is it this food which affects the country in the north more than the remainder? Is it meat and, if so, some particular kind? More meat is eaten at present, and more in the north than in the south of France. He tabulated the cancer frequency for a decade in forty-seven towns and the amount of meat consumed, and found that of sixteen using little meat and having but few deaths, only two are within the fatal square.

The lower death rate among Jews has been attributed by Fishberg²³ to some peculiarity in their ritual laws on diet. As regards the non-use of pork, cancer, with the exception of carcinoma of the penis, is frequent among Mohammedans, who also abstain from pork. This exception is generally agreed to be due to circumcision. The Imperial Cancer Research Institute collected a number of examples among the Arabs of Khartoum.

While the Jewish race is less subject to cancer, it is by no means exempt. The late Sir B. W. Richardson,²⁴ of London, said he had noticed it comparatively frequently among his well-to-do Jewish patients. Bainbridge²⁵ also states he has operated on many cases and refers to a specific instance, but it was a sarcoma. Theilhaber,²⁶ at the International Cancer Conference, reported that cancer is relatively frequent among the Jews in Munich, though carcinoma of the uterus is decidedly uncommon.

Kalgouf²⁷ has even recorded what may well be termed a cancer "epidemic." In a small town with 1,500 inhabitants, 600 Gentiles, within a year he treated eight cases, seven in Jews, and but two with a history of heredity. During the previous twelve years he had not seen more than seven or eight cases altogether.

Bosc,²⁸ of the university of Montpellier, France,

²⁰ Hildebrand, W. H.: *The Causes, Prevention, and Treatment of Cancer and Other Diseases*, London, 1917.

²¹ Fishberg, Maurice: *The Jews*, New York, 1911.

²² Richardson, Sir B. W.: Quoted by Williams in "*The Natural History of Cancer*," New York, 1908.

²³ Theilhaber, F.: *Presse méd.*, October 5, 12, 22, and 29, 1910.

²⁴ Kalgouf, E.: *Semaine méd.*, August 26, 1905.

²⁵ Bosc, F. J.: *Presse méd.*, November 26, 1913.

has considered the influence of diet from a different point of view. In 1898 he stated that he believed cancer was due to protozoa, and, five years later, that affections supposed to be due to ultra-microscopic causes are, as a matter of fact, produced by protozoa. As the result of investigation of an enormous number of cancers, he claims in his latest paper to have found protozoa in all, but in different stages of development.

The prevalence of cancer is accounted for, in his opinion, by the widespread of protozoa in nature. The sporulating, or resisting, forms are excreted in the feces of insects, and of most of the animals, both cold and warm blooded, associated with human beings or used as food. If dust laden with the feces of any animal serving as a host becomes lodged on the lips, or if an insect is crushed on the skin, a portal is opened for protozoa. Thus, he continues, the gastrointestinal tract is prone to constant traumata, especially since fish, mollusks, etc., used for food have hard parts which serve both as a vulnerating agent and as a mode of infection. He accounts for the great frequency of cancer in the alimentary tract by the use of raw or partly cooked vegetables and fruit, fish, or flesh. In some parts of South America, e. g., Uruguay and Argentine, cancers of the esophagus, stomach, and intestine are very prevalent, said to be due to an excessive flesh diet.

After his pronunciamiento, already quoted, Russell⁶¹ apparently has some misgivings, for he adds: "Flesh eating in itself, apart from excess or common adjuncts, is certainly not a large contributing cause, for the very moderate flesh-eating peasantry of Normandy, Norway, Switzerland, South Australia, etc., have about the highest rates of all."

For many years Bulkley⁶⁰, the well known dermatologist, has been of the opinion that eating of meat produces cancer, and states he has treated both primary and recurrent cases by strict vegetarian diet with—so he claims—remarkable results. He likens carcinoma to psoriasis, which is characterized by epithelial prolongations into the corium quite comparable to the ingrowing masses of cells met with in the early stage of cancer. Again, cases of epithelioma developing from psoriasis are seen not infrequently. He has placed a number of cases on record where the lesions have disappeared entirely without any medical measures whatever, merely a strict vegetarian diet. In a somewhat extended tour of the far East, during which hospitals in Japan, China, and the Philippines were visited, with a total of many thousands of patients, he was told that "cancer was rarely seen among vegetarian peoples."

Nevertheless, cancer is not rare in Japan by any means—60 per 100,000 population; and as for the Philippines, or at least Manila, Dudley⁷⁰ states that of 4,284 admissions to St. Paul's Hospital, 48 were for carcinoma, and 17 for sarcoma; while 27 cases of carcinoma and 8 of sarcoma were inoperable. The total deaths in the city for the year were 7,613, of these, 64 being due to cancer. Kieffer⁷¹ also states that cancer is not uncommonly rare in the Philippines.

Bell⁷², about the same time as Bulkley, advised a diet of uncooked food, nuts, vegetables, with complete avoidance of meat.

One of the earliest advocates of the meat theory was the late Sir W. M. Banks, of Liverpool, in a discussion some twenty-five years ago.

Hoffman⁷³ remarks: "If meat-eating, as such, were a definite cause of cancer frequency, the disease would be exceptionally common among tribes of our Indians who, to an unusual extent, live upon a meat diet. Yet of 886 deaths reported to the Census Bureau, only 9, 1.02 per cent, were from malignant tumors."

Another race which should be ravaged by cancer, on the meat hypothesis, is the Eskimo. Travelers tell us that practically the only vegetable food they obtain is from the partly digested remains of muskox and reindeer, with some scanty supplies of scurvy-grass, and so on. Yet they seem immune, though a few deaths are reported by the Danish official physicians stationed in Greenland for many years past. Meldorf⁷⁴, for example, states that of 15,000 patients, less than 1 per cent had tumors, only a few of these being malignant.

The increasing prevalence of renal calculi in Switzerland has been attributed to diet also by Lardy⁷², while this topic is foreign to our subject, his opinions may be briefly referred to as showing the extreme views often held. After residing in Turkey for many years, he was struck on his return to Switzerland by the greatly increased frequency of kidney stones, and suggested this was caused by the much freer use of mutton. In 1880, about 1,650 tons were eaten, while in 1911, the date of his paper, the amount had grown to nearly 8,000 tons. He claims that in other countries, such as Turkey in Asia, Russia, Hungary, and England, where there are many calculi, the inhabitants also consume large quantities of mutton.

Ochsner⁷⁵, however, observes that India and China are two countries where stone is most common. India probably has the most cases, and an

⁶⁰ Bulkley, L. D.: Med. Rec., New York, October 24, 1914.

⁷⁰ Dudley, F. W.: Jour. Am. Med. Assn., May 23, 1905.

⁷¹ Meldorf, G.: Nord. med. Ark., quoted in Jour. Am. Med. Assn., March 21, 1908.

⁷² Lardy, E.: Cor. Bl. f. schweiz. Aerzte, May 1, 1911, p. 453.

⁷³ Ochsner, A. J.: General Surgery, Practical Medicine, Series 1918, ii, 540.

English author remarks, "one might build walls of calculi." Yet the Hindus are vegetarians, as are the Chinese. The frequency in England is confined principally to the eastern counties where it is supposed to be due to the hard limestone water.

In the English colony of Sierra Leone, west coast of Africa, Renner⁷⁴ finds the number of cancers, especially of the breast, increasing among the "creoles" or descendants of liberated slaves due, he believes, to indulging in preserved and imported foreign fruits, sweetmeats, etc. It is absent or rare in the aborigines who live on their primitive food.

It is a disturbance of the potassium balance of the body which is responsible, so Ross⁷⁵ claims. The spread of cancer is caused by the growing deficiency of potassium in our food and drink.

One of our common condiments is to blame, according to Robinson⁷⁶, who in his somewhat recent articles gives figures to prove that the cause is to be found in the constitution of the blood plasma as evidenced by the frequency with which such organs as have free blood supply are affected. The improvement, as a result of vegetarian diet, is due to the absence of common salt. Meat must be salted more than is normally found in the flesh of the animal, though meat contains a much higher percentage than ordinary vegetables. Salt must ultimately find its way into the plasma, increasing its saline content to a higher degree than the one in which the cells were intended to live normally. To produce cancer, the subject must have inherited an antipathy to chlorin which he terms "chlorism," and likens to bromism and iodism, of the same chemical group as chlorin. The hereditary tendency may lie in transmitting this antipathy.

Several Factors Are Concerned

Robinson revives Braithwait's⁷⁷ theory of 1901-2, which was that there are four factors originating the disease. Salt is the essential one, but without one, generally two more, does not operate, the others being excessive feeding, especially meat, senility of the cells, and local irritation. All four of these may be present. The freedom of the Jews is due to their not eating bacon. Cancer houses prevail where there is room to keep a pig, and the habitants eat bacon, etc.

At the Cancer Conference, Schöne⁷⁸, of Marburg, also stated that sodium chlorid in large quantities seems to favor the proliferation of tumors.

According to Hewlett⁷⁹, on the other hand, the death rate among sailors and fishermen who use large quantities of salted provisions is only 60

and 46 per 1,000, respectively. Moreover, many of us can remember when salt meat formed a large proportion of the diet in rural communities. This is largely a thing of the past; indeed, in the last thirty or forty years the facilities for obtaining fresh meat have already lessened the usual consumption of salt meat, yet cancer is increasing by leaps and bounds.

Of course, alcohol, too, has been dragged in, the late J. F. Payne⁸⁰ alleging this as a factor in 1899. If we remember correctly he was the medical referee for a temperance life insurance company. Any attack on his habits of eating and drinking perturbs the wellfed Englishman, and we are not surprised at the following utterance from Mr. Owen⁸¹:

"In these days when well-meaning but overzealous persons are forever telling us that the chief part of our illnesses are brought on by our misdeeds, and especially by a moderate indulgence in what they are pleased to call "alcoholic beverages," it is somewhat of a comfort to find that the trout and carp, undoubtedly water-drinkers, are, with the rest of us, liable to cancer."

In fact, Heron⁸² of the Galton Institute (London) actually found cancer less common among inebriates than in the population at large.

Biologic Phenomena

Such are a few of the many theories to account for this fell disease. Some are absurd, others ridiculous; more than one are diametrically opposed to others, yet several seem to contain a figment of truth. Some facts can be found to substantiate the parasitic theory, others as the famous "Kangri burns" of Kashmir, negate it. This leads me to ask if there is only one cause after all. As Rohdenburg and Bullock⁸³ observe, the wide distribution of tumors in nature speaks for the possibility they are dependent on general biologic phenomena, as opposed to some specific casual agent.

Cancers have been found in the warm-blooded animals and birds, in the cold-blooded reptiles, amphibians and fishes, and—according to Bashford⁸⁴—even the lowly oyster has been found to harbor a tumor. I believe it is evident that the same cause for malignant tumors in man must also hold good for similar growths in other vertebrates.

⁷⁴ Renner, W.: Brit. Med. Jour., September 3, 1910.
⁷⁵ Ross, F. W.: Forbes: Cancer, London, 1912.

⁷⁶ Robinson, E. P.: Med. Rec., New York, September 1, 1917.
⁷⁷ Braithwait, James: Brit. Med. Jour., September 20, 1902.

⁷⁸ Schöne, G.: Presse méd., October 5, 12, 22, and 29, 1910.

⁷⁹ Hewlett, R. T.: Lancet, London, March 22 and April 5, 1902.

⁸⁰ Payne, J. F.: Lancet, London, September 16, 1899.

⁸¹ Owen, Edmund: Brit. Med. Jour., December 5, 1906.

⁸² Heron: Quoted by Hoffman.

⁸³ Rohdenburg and Bullock: New York Med. Jour., August 3, 1912.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

RECONSTRUCTION THERAPY. By William Rush Dunstan, Jr., M.D., assistant physician at Sheppard and Enoch Pratt Hospital, Towson, Md.; instructor in psychiatry at the Johns Hopkins University, president of the National Society and of the Maryland Society for the Promotion of Occupational Therapy; secretary of the Maryland Psychiatric Society.*

As one who had had long training and experience in the specialties of administrative work in hospitals, clinics, and the educational features connected with them, the author surveys the field of reconstructive therapy in a thorough, orderly, and complete fashion. He shows the relative value of the various mediums of restorative treatment; the avenues of reconstructive training and treatment; physical education involving occupation and occupational therapy; vocational reeducation; workshops; prosthetic appliances and occupational therapy for special classes of patients.

The chief worth of the book, however, is in the suggestive helps which it offers to occupational directors and their aides. Chapters are devoted to the qualifications essential to success for the occupational director, and his duties in state hospitals, incorporated hospitals, psychiatric clinics, and in general hospitals. A bibliography of occupational therapy is appended to the book.

THE DISABLED SOLDIER. By Douglas C. McMurtrie, director, Red Cross Institute for Crippled and Disabled men; president, Federation of the Associations for Cripples; editor, American Journal for Crippled Children. With an Introduction by Jeremiah Milbank, vice-chairman, Committee of Direction, Red Cross Institute for Crippled and Disabled Men.†

The viewpoint of one who has devoted the years of his professional career largely to the cause of the cripple, is the prime element of worth in this book, and is the quality which distinguishes it from every other work on the subject of rehabilitation for the disabled.

The book may be likened to a series of sketches taken from the histories of armies and nations of other centuries. It traces the social conception of the cripple's place in the world from the time when deformed men and women were looked upon with loathing and scorn by their healthy neighbors, who held to the superstition that a deformed person was possessed of an evil spirit.

The successive measures adopted by armies and governments during the Middle Ages for the pensioning and maintenance of disabled soldiers; the evils; the injustice; the persecution and pauperism; the almsgiving; the shiftlessness; the denial of the cripple's equality with other men, and the refusal of modern industry to accept the labor of disabled workmen, are related by the author.

The closing chapters give in perspective the new conception of the duty of governments to insure restoration and rehabilitation of its soldiers or disabled workers.

The title of the book suggests the timeliness of Dr. Mc-

Murtrie's contribution rather than its true scope and significance. He has given expression to the principle that has been recognized only in recent years, that rehabilitation of disabled members of society is a duty which is wisely economical and broadly humanitarian in its application.

THE REDEMPTION OF THE DISABLED. A Study of Rehabilitation for the disabled of the War and of Industry. By Garrard Harris, Research Division Federal Board for Vocational Education. With an Introductory Chapter by Frank Billings, Col., M. C., U. S. Army; Chief of the Division of Physical Reconstruction, Office of the Surgeon General; and a Foreword by Charles A. Prosser, Director of the Federal Board for Vocational Education.‡

What may properly be defined as a statement of the newly conceived principle in the political and social life of modern nations is the theme of "The Redemption of the Disabled." The author does not in any place state his theme concisely, yet the reader is conscious of an idea which has sprung up during the war and since, that states and governments must look to the rehabilitation of all the crippled and disabled members of the social body.

This principle conceives of the restoration and rescue of every victim of accident in industry, and every sufferer from occupational disease or physical impairment caused by any of the processes of industrial enterprise. The book is a narrative of the advance and growth of the vocational and therapeutic measures employed by the Army Medical Corps and the Federal Board for Vocational Education in restoring disabled soldiers, sailors, and marines to health and independence.

The author endeavors to state a proposition that contemplates action by the health departments and legislatures of the states. He contends that the problem of taking care of the industrial workers must be dealt with by the states and the Federal Government, and that some permanent policy must be worked out in every state that has an appreciable class of workers in industry. The newness of the problem, when considered as an issue for state action, hinders the writer in giving a well-defined statement of the principle, but furnishes an excellent starting point for further steps toward that end.

ATHLETES ALL. Training, Organization, and Play. By Walter Camp.§

While written for the general reader, this book still possesses exceptional features of interest to professional men and women who are interested in welfare and health activities of any kind. The healthy sports of the track,

(Continued on Adv. Page 22)

*W. B. Saunders Co., Philadelphia, 1919.

†The Macmillan Co., New York, 1919. Price \$2.00.

‡D. Appleton & Co., New York, 1919.

§Charles Scribner's Sons, New York, 1919. \$1.50.

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BOOKS OF THE MONTH

(Continued from Page 368)

the field, and the gymnasium are a means to national preparedness both for the defence of the nation and for the preservation of American ideals. The author discusses organization and management for the furtherance of games and athletics in schools or camps. Duties of manager and captain are explained, and suggestions offered as to how to conduct an athletic meet. The various sports of the track, gymnasium, and field are given special attention. One of the best chapters in the book is that entitled "Keeping Fit in Winter."

THE WHOLE TRUTH ABOUT ALCOHOL. By George Elliot Flint, M.D., with an introduction by Dr. Abraham Jacobi.*

This book is a rather impassioned plea for the reinstatement of alcoholic beverages in popular favor. The author, a physician, presents in an interesting manner the point of view of those medical men who regard the use of alcohol in moderate amounts as beneficial in sustaining the health and courage of a burdened race.

That alcohol will sustain the strength and vitality of one otherwise below par; that it will carry him through to a good old age and enable him to bear the strain and burden of a complex modern life, are the claims advanced by the author.

The place of alcohol in industrial communities; its use by the working-men; its use in war; in the tropics, and for preventive purposes, are reviewed, and a defense of alcohol established on the ground of the usefulness which may be claimed for it in many ways.

Addenda are included, which are, namely, "Alcohol Economically and Practically Considered" and "Cardinal Gibbons on the National Prohibition of Alcohol."

VEGETATIVE NEUROLOGY. The Anatomy, Physiology, Pharmacodynamics, and Pathology of the Sympathetic and Autonomic Nervous Systems. By Dr. Heinrich Higier, of Warsaw. Authorized translation by Walter Max Kraus, A.M., M.D., New York.†

This author takes up the origin and elaborates on the various functions of the vegetative nervous system, otherwise the sympathetic nervous system, its relations to metabolism, to the endocrine glands of internal secretion, and also its relation to the mind itself. That this system is being considered more carefully and shown greater consideration in the treatment of nervous and mental cases is the strongest evidence that scientists are opening up avenues of thought in such connections as to attract and educate the clinician. The work has been well translated by Doctor Kraus.

EFFECT OF DIET ON ENDURANCE. By Irving Fisher, Professor of Political Economy in Yale University, Chairman of the Hygiene Reference Board of the Life Extension Institute.‡

Professor Fisher's book is a new edition of a study originally printed in the "Publications of Yale University," *Transactions of the Connecticut Academy of Arts and Sciences*, Vol. XIII, pages 1-46, May, 1907. The book contains tabulations and texts giving the results of endurance tests conducted during 1906 among a group of students who formed themselves in an eating club. Rules were established in an endeavor to encourage thorough

(Continued on Page 24)

*The Macmillan Co., New York, 1919. Price \$1.50.

†Nervous and Mental Disease Pub. Co., 1919. \$2.00.

‡Yale University Press, New Haven, 1918.

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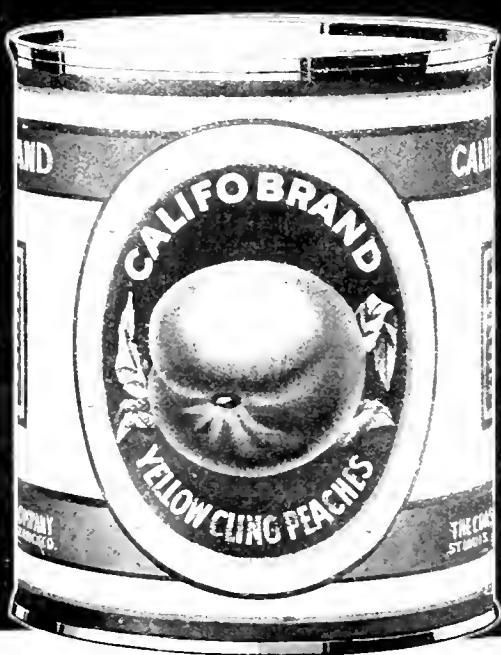
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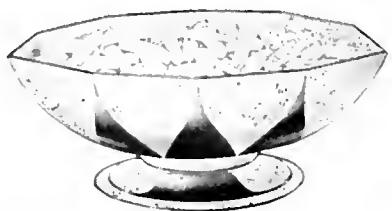
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BOOKS OF THE MONTH

(Continued from Page 22)

mastication of food, choice of food by instinct, and by the use of reason when instinct was in doubt. The dishes selected were noted and a record kept of the kinds of foods eaten and the nutritive value in portions of one hundred calories, each portion of food being the equivalent of one hundred calories. The changes in physical endurance as determined by repeating a series of gymnastic exercises at intervals and measuring the relative effort put forth, showed that endurance increased when the proportion of protein in the diet was reduced. By a method of natural selection intended to regulate the diet of the men without imposing restrictions upon them in the choice of food, it was discovered that at the beginning of the experiment the amount of protein used varied greatly, while at the end it was reduced to a fairly uniform level for all the men, whose endurance in each instance was much improved.

THE GIRL IN INDUSTRY. By D. J. Collier. With a Foreword and Introduction by B. L. Hutchins.*

A high standard of health was found to prevail among groups of English working girls wherever there prevailed wholesome conditions at their work, in their home surroundings, and in their opportunity to enjoy the ordinary comforts of life without the handicap of mitigating circumstances. The investigation reported in the present volume was undertaken to secure information as to the biological effects of employment of girls and the future effect on the mature women and their offspring under the conditions of industrial employment in the adolescent years. The greater part of the material presented by the author is based on opinions derived from personal observations, with limited scientific data and no statistical foundation.

THE CONTROL OF THE DRINK TRADE IN BRITAIN. A Contribution to the National Efficiency during the War. By Henry Carter. With a Preface by Lord D'Abernon. Second Edition.†

The outcome of regulation of traffic in intoxicating drinks by the British Government during the war is set forth with completeness and in detail in this study of the subject. Considerable appreciation of the book in England has resulted in demand for a second edition.

The prefatory note by Lord D'Abernon explains the political necessity for a choice by the Government between control of the liquor trade and prohibition. It was the consensus of opinion that regulation and control would accomplish the desired results during the period of the war, and would possibly prove more instructive and satisfactory in operation than prohibition. With this in mind, the volume is of especial interest to the American reader because of the contrast in policies adopted by the two countries.

The new edition has been amplified by the inclusion of statistics to show the decrease in drunkenness, deaths from alcoholic diseases, and crime, following the enactment of the English law. The author notes that considerable dissatisfaction and unrest was produced among the working people of certain industrial communities as a consequence of a shortage of liquors at various times during the war. He reviews the experiences of England in the light of Sweden's experiment under a National system of spirit rationing.

*G. Bell & Sons, Ltd., London, 1918, price 9d. net.

†Longmans, Green & Co., New York, 1919. Price 60c.

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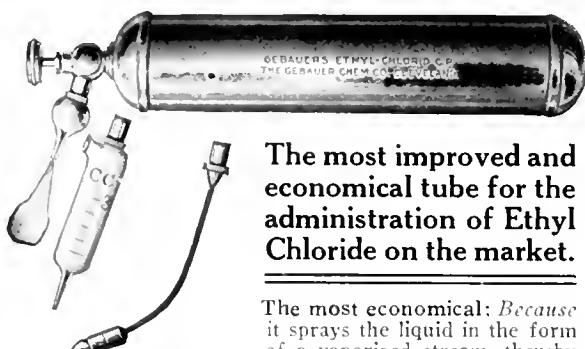
MODERN MEDICINE is ever anxious to keep in touch with results of industrial welfare and medical work, so that the benefits of such work may be made known to its thousands of readers.

In order to complete our survey of the industrial and public health fields, we are desirous of securing the names of all industries doing medical or welfare work among employees. We shall be grateful for any information bearing on the subject and will especially appreciate the forwarding to us of names of physicians and others in charge of such work.

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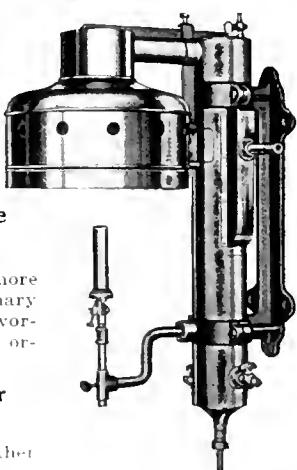
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He wasn't down-hearted though, and neither was the Board. They got together, and, using the background of medical training, sketched in a special course in eye, ear, nose, and throat at a Chicago medical school, and started in!

Take in his sign? Not much! He's adding to it the twentieth century watchword, "Specialist."

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The Iowa Legislature has enacted a law which provides "that if any person afflicted with tuberculosis carelessly or maliciously expectorates the matter coughed from his lungs, and after being warned refuses to protect others against the dangers of his infection, then on complaint filed in writing in the district court the judge may commit such incorrigible consumptive to the state sanatorium, provided there is room, or to any county or private institution for tuberculosis for treatment."

It is also provided "that if a person afflicted with tuberculosis and under treatment at the state sanatorium or county or private hospital for tuberculosis refuses to obey the rules and regulations governing such institution and is a general disturber, then on complaint of the superintendent the district court may authorize such person to be retained in a room or enclosure in such hospital until such person is willing to comply with the rules and regulations of the institution."

ST. LOUIS TO OPEN EIGHT CHILD WELFARE CLINICS NEXT MONTH

Eight clinics to promote the welfare of infants and children of pre-school age will be opened in St. Louis about September 1. Financial support has been obtained for the clinics through the generosity of a group of public spirited citizens.

Supervision of the clinics will be placed under the jurisdiction of the Division of Public Welfare of St. Louis. Medical and nursing service for pregnant mothers and attention for children up to school age is planned. The city will assume the operation of the clinics as a municipal activity in 1920.

The donors are, Benjamin Gretz, Mrs. Lily Busch, Benjamin and Marcus Harris, Mrs. J. Louis Swarts, William T. Hill, Mr. and Mrs. George Warren Brown, Mrs. Ames Cushman, Mrs. Lon A. Hocker, Mrs. A. Breuggemann and an anonymous donor.

The funds will be administered under the direction of Dr. Borden S. Veeder of the Children's Hospital; Mr. John Schmoll, director of public health; Dr. C. H. Shutt, hospital commissioner, and Miss Lyda M. Anderson, chief of the Municipal Nurse's Corps.

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Many of the foremost advocates of sound, restful sleep—physicians and public health officials in big cities and small towns to whom the columns of the local newspapers are open—have already made the advantages of the right kind of sleep a feature of published "health hint topics," over their own signatures.

Much valuable and helpful data regarding this all-important subject has appeared in the leading medical publications during the past year. Authoritative and unbiased as it is, data of this kind should become a practical inspiration to all who are interested in spreading the gospel of sleep.

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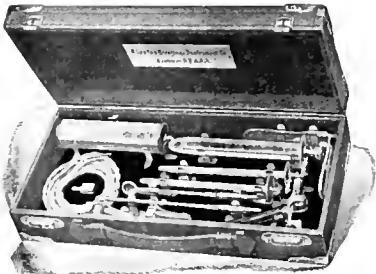
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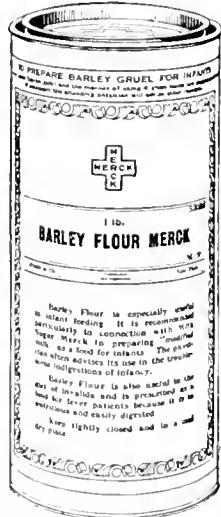


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FOURTEEN COUNTRIES SEND DELEGATES TO A. M. A. CONVENTION

Fourteen foreign countries sent delegates to the Atlantic City meeting of the American Medical Association in June. The countries represented were England, France, Belgium, Scotland, Greece, Canada, Cuba, Ecuador, Buenos Aires, Peru, China, Japan, India, and the Province of Cameron, West Africa.

The physicians and surgeons in attendance from those countries were:

Lehman, Wilmer S., Lolodorf, Cameroun, W. Africa.
Caser, Baron Ernest, Belgium.
Depage, Antoine, Belgium.
Duesberg, J., Belgium.
Melis L., Brussels, Belgium.
Nolf, P., Brussels, Belgium.
Sand, Rene, Brussels, Belgium.
Captain Van de Velde, Belgium.
Chutro, Pedro, Buenos Aires.
Aikins, W. H. B., Toronto, Can.
Bagshaw, Elizabeth, Hamilton, Can.
Buchanan, W. D., Peterborough, Ont.
Chartier, Aimé, Sorel, Quebec, Can.
Cleaver, Ernest E., Toronto, Can.
Clendenan, G. W., Toronto, Can.
Cody, William, Hamilton, Can.
Craig, Robert H., Montreal, Can.
Rawley, W. E., St. John, N. B.
Ross, George T., Montreal, Can.
Starr, Clarence L., Toronto, Can.
Sutton, A. B., Port Credit, Can.
Waldron, C. W., Montreal, Quebec, Can.
Willinsky, A. L., Toronto, Can.
Wishart, D. J. Gibb, Toronto, Can.
Young, William A., Toronto, Can.
Lee, S. T., Peking, China.
Leonard, Eliza E., Peking, China.
Ming-Shao, Hsu, China.
Peter, William Wesley, Shanghai, China.
Ting-han, Chang, China.
Almila, E., Havana, Cuba.
Carrera, Julio, Cuba.
Fernandez, Francisco M., Havana, Cuba.
Gutiérrez, Juan, Cuba.
Dibble, W. J., Weston, Can.
Dixon, W. E., Grand Mere, Can.
Ewing, Francis James, Vancouver, Can.
Farris, H. A., East St. John, N. B.
Ferguson, W. A., Moncton, Can.
Fleming, Francis P., St. John, N. B.
Gallivan, James V., Peterborough, Can.

Hastings, Chas. J., Toronto, Can.
Hicks, E. S., Brantford, Can.
Hill, Clarence E., Toronto, Can.
Johnston, Samuel, Toronto, Can.
Kendall, W. B., Gravenhurst, Ontario, Can.
Lauterman, Maxwell, Montreal, Can.
Mallory, Fred, Toronto, Can.
Mann, Arthur H., Olds, Alberta, Can.
Minns, Frederick S., Toronto, Can.
Mitchell, J. P., Toronto, Can.
Mowbray, F. B., Hamilton, Can.
Mullin, R. H., Vancouver, B. C.
Neal, Frank C., Peterborough, Can.
Rabinowitch, I. M., St. Anne de Bellevue, Quebec, Can.
Martinez, Emilio, Cuba.
Somodevilla, Santiago, U. S. So Luis, Cuba.
Kingman, E. L., Zaruma, Ecuador.
Brown, W. Herbert, Glasgow, Scotland.
Dimsey, Edgar R., British Admiralty.
Groves, Ernest W. Hey, England.
Hurst, Arthur F., England.
Lane, Sir William Arbuthnot, England.
Murphy, Shirley, England.
Newsholme, Sir Arthur, England.
Rose, Frank A., London, England.
Thompson, Sir St. Clair, London, England.
Begouin, Paul, Bordeaux, France.
Lemaitre, Fernand, France.
Picque, Robert, Bordeaux, France.
Alexion, Alexander, Greece.
Constas, John, Greece.
Allen, Belle Lane, Baroda, India.
Fletcher, A. G., Taiku, Japan.
Kamimura, Asajiro, Tokio, Japan.
Kodama, Ryuzo, Japan.
Uchimo, Senichi, Tokio, Japan.
Holst, Peter F., Norway.
Muro, Felipe, Lima, Peru.
Ingvar, Sven, Lund, Sweden.

TREATMENT OF SPANISH INFLUENZA

The literature on the so-called Spanish influenza is so voluminous, and the reports of its pathogenesis so varied and conflicting, that it might well be concluded that not one but several epidemics prevailed at the same time. A study made of many French and foreign treatises by Dr. E. Folley,¹ Paris, reveals a constancy of the cardinal symptoms of (1) diminution of arterial tension, (2) irregularity and variation of amplitude of pulse, (3) weakening or even imperceptibility of first sound of heart, (4) early cyanosis of finger nails, (5) enlargement of spleen and slight enlargement of liver, (6) "Sargent's white line," earthy hue of skin, scowling countenance, considerable asthenia, pupillary oscillations, persistent sleeplessness, (7) slight delirium with high temperature, frequently increasing when temperature falls, (8) irritability, in contrast with intellectual torpor, (9) signs of lungs being affected, but in no precise locality, (10) expectoration, in most cases forming with pulmonary localization,

(Continued on Page 30)

¹ Personal communication. Also reported in Lancet, Lond., 1919, excli. No. 4900, 656.

"A NATION OF DYSPEPTICS"

"**Y**OU are a *Nation of dyspeptics*" said a well known English physician, who recently visited America.

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TREATMENT OF SPANISH INFLUENZA

(Continued from Page 28)

frothy, with thin streaks of dull red hue, later changing to whitish or greenish, (11) slight diarrhoea in most cases, constipation in others, (12) urine clear and abundant, never having appearance of so-called "febrile urine," (13) hemorrhage likely to occur in any mucous membrane, and (14) cardiac syncope, preceded by slow and weak pulse.

The constancy of these symptoms, a majority of which occur in each case, and the fact that all characteristics of the disease developed in man after the accidental laboratory inoculation with virus from a patient point to the conclusion that the pandemic was that of a specific disease.

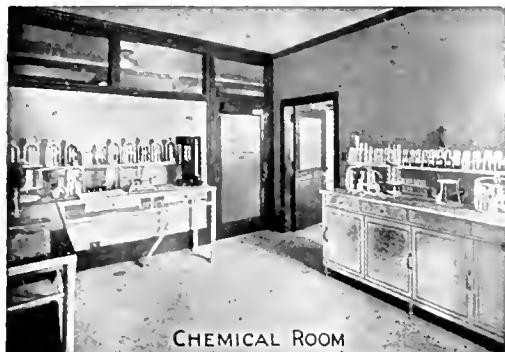
Dr. Folley had frequently recovered from influenza patients a small mobile coccobacillus with bipolar coloration and of a non-adhesive nature, the characteristics of which he promises to describe later. The bacillus generally disappears from the blood when complications exist and a rise of temperature takes place. Colonies of this organism were obtained from the blood of the accidentally inoculated case, and cure was effected by the use of a serum obtained from this group (anti-plague serum). Later it was successfully used with cases showing pulmonary complications and nervous disorders. Used intravenously for patients with syncope and subcutaneously in other cases, not a single death occurred among patients so treated and convalescence was remarkably shortened.

HOW TO START AN INDUSTRIAL MEDICAL SERVICE*

Social organization has always followed the lines of evolution, wherein the cell came first, then a group of cells, then a nervous system; similarly, in the social world first came the family, then the tribe, then the governed nation. New services should be allowed to evolve, and not be forced into existence on plans drawn up in some official headquarters.

The need for an industrial medical service has been dealt with in a previous article; the present intention is to show how it can be started. Its subsequent evolution may thereafter be safely left to the future. The first point to have in mind is that a medical service to be effective should acquire the momentum of popular interest, which can only be obtained through direct touch with the personality of those it serves. This is fundamental, and its absence in the past from public health medicine is some explanation of why the average citizen has taken so little interest in the health of the community of which he is a part, although he is only too ready to discuss personal medical topics. The next point is consideration of the duties to be undertaken. These concern industrial birth, life, and death. Industrial birth is the engagement of workers; and here medical services are of great value. A medical officer acquainted with industrial processes may reject a heart case, a myope, or an incipient hernia for some processes, but safely accept them for others; as he gains more experience he will choose persons for special work according to their capacity as measured by alertness, physique, acuity of hearing or of vision; in short, he will adjust round pegs into round holes, and so do much to avoid the great economic waste of labor turnover, the result of the present method of trial and error which leaves the worker to try place after place until a congenial one is found; by thus examining each newcomer personal contact is established which should never be lost.

(Continued on Page 32)



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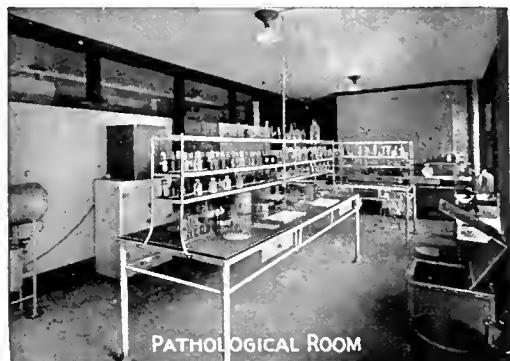
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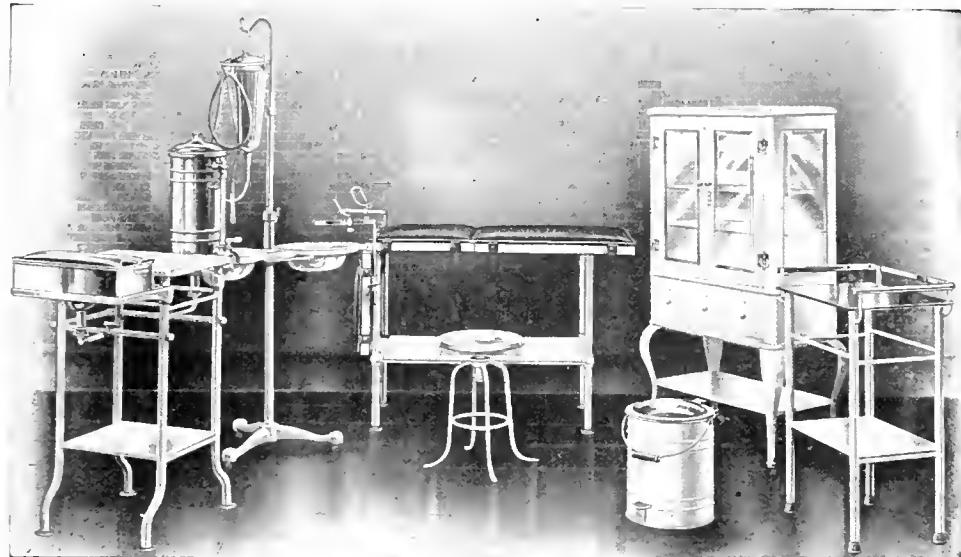
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HOW TO START AN INDUSTRIAL MEDICAL SERVICE

(Continued from Page 30)

Industrial life is the period of employment; and here skilled medical services are of even more value; to determine the existence of fatigue, the optimum hours of labor, the presence of faulty ventilation or bad lighting; to supervise the hygiene of workplaces; to arrange for dental supervision; to deal with outbreaks of epidemic disease; to advise on the provision of a canteen and its food-supply, of cloakrooms, of washing facilities, and of suitable overall clothing; to watch lost time and sickness records; to supervise closely the health of those employed on dangerous processes; to organize first aid treatment and establish contact with outside medical treatment; to advise on compensation cases. Here personal contact should be maintained and strengthened, and the medical officer become the friend and adviser of all. Industrial death is the cessation of employment; and here the medical officer should inquire closely into the causation of dismissal or leaving so that he may ascertain where his practice is at fault; such inquiry should be for him what a post-mortem is to the physician and surgeon.

Every industry will have its own special problems; but the above short summary of the work to be done suggests where it must start—viz., in industry by the retention of whole or part-time medical services by employers of labor. The employer will gain in the quality and quantity of output far more than the salary he pays; the worker will benefit by improved health, happiness, and earning capacity. A few employers have already taken this step; and probably more would follow if they could obtain medical men adequately trained, but there are not many who on perusing the above rough list of duties would consider themselves trained to undertake them. Two things are now needed, an increased supply of trained men and an increased demand for their services. The increased supply could rapidly be met by post-graduate courses held at medical schools in industrial areas; Birmingham, Bristol, Cardiff, Glasgow, Manchester, and Sheffield suggest themselves. Practitioners in industrial areas all suffer from lack of knowledge of how their patients earn their livelihood, and would willingly attend such courses. One group of the profession should in this matter take the initiative, both in pressing the schools to start courses and in attending the courses; we refer to the certifying factory surgeons. They already possess a recognized association and are in touch with the factories and workshops; but the duties entrusted to them, as they are aware, are wholly inadequate to the needs of industry.

The increased demand would follow almost automatically from the existence of the supply for each trained practitioner in his daily work would influence the men and their unions on the one side, and the employers and their councils on the other. Both sides would soon appreciate the value of a medical attendant with an intelligent understanding of industrial problems and ready to use his knowledge to their advantage.

Our appeal, then, is to the great provincial medical schools to start post-graduate courses in industrial medicine directed to meet the needs of the district, and so be of direct and immediate benefit to the industries among whom they exist, in the sure and certain hope that the industries in their turn will react and give greater financial support to the schools. The schools need financial support, and it is more likely to be forthcoming if the schools pay attention to the particular needs of industry and establish clearly the value industry will get in return.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians
& for Others Interested in Administrative, Industrial
& Social Health Problems

Editors ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., and JOHN A. LAPP, LL.D.

Managing Editor JOHN A. LAPP

Editorial and Business Offices, 58 EAST WASHINGTON STREET, Chicago

Volume 1.

SEPTEMBER, 1919

Number 5

NOTES AND COMMENT

AGE AND OCCUPATIONAL DISABILITY

WE PUBLISH in this number a valuable contribution to the subject of the extent of sickness from the pen of Mr. Boris Emmet who was for many years statistical expert for the United States Bureau of Labor Statistics. The figures which he presents in his article are the result of a thorough-going actuarial investigation by the Bureau of one of the leading sickness insurance companies in the country and to date is the most authoritative statement of disability by age and occupation that has appeared.

It has, of course, been evident to all observers that sickness increases with age, but the exact measurement of this has never been given, and it has been a matter merely of impression. Here we find presented with cold analysis the fact that beginning with the age group 45 to 49, the extent of sickness is progressively on the increase. The figures are indeed so clear that they do not need explanation or comment. It is found also in the figures that beginning with the age group 50 to 59 the number of disability days for each person disabled also rapidly increases, showing that the older men recover more slowly from disability.

Even more important in the presentation of his data are the statistics relating to occupational causes. The society insured men in many occupations. It was found that the average number of days lost for all occupations was 6.61 days each year. Certain occupations had a disability rate as high as 9.7, while others had as low a rate as 2.6 days each year. It should be noted, however, that some of the highest disability rates are partly due to the inclusion of industrial accidents which

were particularly heavy among such occupations as mining and freight handling.

The conclusion is unmistakable that there is wide variation in the amount of sickness borne by workers in different occupations. Freight handlers, for instance, suffered 47 per cent more than the average, although the average age of this group was three years less than the average age of the total. At the opposite extremes the professional workers suffered 56.1 per cent, jewelers, 43.9 per cent, and trade and clerical workers 30.3 per cent less than the average. Comparisons, of course, must take other elements into consideration. The living conditions of different groups are different. The intelligence of the groups varies. The wages and consequent ability to obtain a decent living varies and the hours of work are also different. But it can readily be seen by measuring certain occupations with other occupations in which conditions are very similar that the factor of occupation is a steady one as a cause of sickness.

THE VALUE OF MEDICAL STATISTICS IN HOSPITALS

THE physician in chief of the Peter Brent Brigham Hospital of Boston makes some interesting statements regarding medical statistics in the recent report of the hospital. After inserting the usual tables of statistics, he made the following comment: "The value of such tables as well as the value of a considerable part of the statistical report of the superintendent, such as those parts showing occupation of patients, nationality, etc., seems to me slight. They contain

numerous unavoidable inaccuracies. They are too incomplete in some respects. For example, the fact that we treated forty-seven carpenters is the diseases of no practical value. If we stated what diseases these carpenters had, it might be of help as showing the diseases carpenters are liable to and help in their prevention. Here again to be of use, one should know the working conditions of these carpenters, for there is much variety in the work of carpenters. In other words, statistical tables present too incomplete a study to be of much service, if of any. The same is true of other features of these tables. I do not believe much use is made of them, and I consider that their space could be used to better advantage, or at least money could be saved to the hospital by their omission."

Recommendation is made that the data be compiled and published at five-year intervals. The criticism in the report may be misleading. The physician in chief was criticising the inadequacy of existing statistics rather than statistics as such. It is probably true that much of the statistical data, in small hospitals at least, is not used or cannot be used to any particular advantage. This may be because the data is not full enough and does not tell the whole story, or it may be that the number of cases is not sufficient for analysis. The criticism should be taken as a basis for revising case records and statistical data, so that the tables will tell a true story and so that all unnecessary data may be omitted. Time should, of course, not be taken to keep records which cannot be used, or when used can serve no definite purpose; but time should not be spared in the keeping of records and statistics on matters that can be interpreted only by the use of mass data.

AMERICAN HOSPITAL CONFERENCE

ON APRIL 21, 1919, representatives of eight prominent national societies met in Chicago for the purpose of organizing a union to promote the development of American hospitals. The organizations represented were: American Hospital Association, American Medical Association, American College of Surgeons, American Nurses' Association, American Association of Hospital Social Service Workers, Association of American Medical Colleges, Catholic Hospital Association, and the Federation of State Medical Boards. The first fruit of the new union is the American Hospital Conference, in which all of the organizations named will be equally represented, and which four additional organizations, namely, the American Association of Industrial Physicians and Surgeons, the United States Public Health Service,

the Medical Department of the Army, and the Bureau of Medicine and Surgery of the Navy, have already been invited to join.

The new partnership is one which should never be dissolved. Each of the constituent societies is in a position to make—has, indeed, already made—notable contributions to hospital progress. The activities of all of the societies will hereafter be stimulated by periodical conferences, and in place of the old patchwork program there will be introduced a rational design by means of which hospitals will be fitted to the country's needs.

What are some of the things that the American Hospital Conference may be expected to accomplish?

The functions of the various necessary types of hospitals will be defined.

The relations of the hospital to the community will be clarified.

Hospital finances will be expended to better purpose and the expenses of hospitals will be more equitably distributed.

Official hospital inspections will be made to dovetail perfectly.

Hospitals will be taught when to act independently, when to cooperate, and when to combine.

Hospital trustees will acquire a keener and fuller realization of their responsibilities in the training of physicians and nurses.

Wise and uniform legislation will be enacted in several states regulating the training of medical students and of nurses.

The output of fully trained nurses and of trained attendants will be made to measure up to the country's need.

There will be a more general acceptance of certain indispensable standards of work and equipment which have been ably, but not always successfully, advocated by the American Medical Association through its Council of Medical Education, by the American College of Surgeons, by the American Nurses' Association, and the American Hospital Association.

Medical men who have not heretofore concerned themselves with questions of hospital organization and administration will be induced to do so and in consequence the determination of vital questions of hospital policy will no longer be left to laymen who are unfamiliar with the fundamental principles involved.

The purpose of medical social service work will be clearly defined; hospital social service will be standardized and improved. Means will be found to develop adequate facilities for diagnosis and treatment not only in the cities where the task is comparatively easy, but in rural communities for which new facilities must be devised.

Each of the constituent organizations of the conference will have the strong moral support of all of the others. An authoritative center will be established for the guidance of public officials who are concerned in hospital administration, of legislators, and of men of means who desire to benefit the community through donations to hospitals.

The first annual conference will be held in Cincinnati in connection with the American Hospital Association, September 10 to 12, 1919.

MEDICAL CULTS

THE report of the Council on Medical Education of the American Medical Association on medical cults ought to have a wider circulation. It is a brief statement, but it covers the ground and it sets forth the issues involved in the legislative assault made annually by the medical cults on the standards of medical practice. MODERN MEDICINE is pleased to quote the report in full:

"An important matter, which affects the relationship between the public and the practice of medicine and which is a problem directly concerned with medical education and medical licensure, is the existence and practice of the various pseudo-medical cults, represented by osteopaths, chiropractors, naprapaths, spondylotherapists, neuropaths, psycultopaths, etc. Most of the teaching institutions turning out such practitioners have been inspected by the Secretary of the Council while on his various tours of inspecting medical schools. Files of information in regard to these institutions have been kept, which include catalogues, printed literature, circular letters, inspection reports, etc. The problem has been given sufficient study so that the following reliable statements can be made:

"(a) The only logical argument to be made against practitioners of these cults is their lack of education. Such training as they have received has been in institutions requiring little or no educational qualifications for admission, and under faculties made up almost entirely of those who have not had a complete medical training. Graduate nurses could, with far greater justice, ask the right to treat human disorders than could the followers of these cults, because nurses are largely taught by physicians and secure their training in hospitals where all types of disease are treated by physicians.

"(b) Before the recent improvements were made in medical education, many of the medical schools were very little better, from the standpoint of buildings, equipment, and teaching facilities than the better pseudo-medical cult institutions. In the former, however, all instructors

were those who had received a training in all the branches of medicine. Under the greatly improved conditions brought about in the last fifteen years, there is now so marked a distinction between the education and training of physicians as compared with the cult practitioners, that any intelligent layman can note the difference.

"(c) The medical profession is justified in objecting to the various cults, not because of their peculiar systems of practising, but because of their serious lack of education and the fact that they are seeking the right to practise as physicians without meeting the same educational standards with which physicians have to comply. If such practitioners wish to appear before the public as physicians and surgeons and to assume all responsibilities of such, then they should not object to being measured by the same standards and submitting to the same tests.

"(d) The work of the Council in connection with low grade medical colleges, drugless cult institutions, and diploma mills has called attention to the lack of adequate safeguards over the chartering of educational institutions in the various states. In all but a few states any group of individuals for a small fee can secure a charter to open an educational institution and to grant all the degrees in the category, no questions being asked in regard to ability, financially or educationally, to furnish the education usually required for such degrees."

GROWTH OF THE HOSPITAL IDEA*

FIGURES in a recent official report to the U. S. Department of Labor show the astounding growth of the hospital idea in this country during the last half-century. In 1873—less than fifty years ago—there were in the United States only 149 hospitals; today there are nearly 9,100—an increase of nearly 6,000 per cent in the number of institutions. In 1873 the total bed capacity of the then-existing hospitals was 35,453; today the hospitals of the country have a total capacity of approximately 869,000 beds—an increase of over 1,000 per cent. The amount of money at present invested in these institutions is roughly estimated at nearly two billion dollars; the annual expenditure for supplies, equipment, upkeep, and new construction is about three-quarters of a billion.

There is much that is interesting in these enormous totals. Certainly, stronger testimony could be adduced to show that the people of the United States are more converted to the hospital idea, and do not mean to be deprived

*Reprinted from THE MODERN HOSPITAL, Vol. XIII, No. 2, 1919.

of the benefits of hospital care. So far, this is good.

Sober second thought, however, discovers some rather formidable questions in this staggering mass of figures. How much of this vast hospital investment has been wisely made and how much of it is destined to be a dead weight on the development of the future? In how many cases have the needs of the community been carefully surveyed before the hospital was even planned and in how many cases has the plan scarcely gone beyond the feeling, "A hospital is a good thing. Let's have a hospital." A two-hundred-and-fifty-bed maternity hospital is erected, and by the donor's will devoted in perpetuity to this single use, in a community in which the total annual births would never keep the beds filled; a four hundred-and-fifty-bed epileptic colony finds less than a hundred inmates; and meanwhile other institutions are forced to turn patients away. Here and there is a general hospital equipped with an elaborate and costly operating room, but inadequate laboratory facilities, in a community in which surgical cases are few but cases of typhoid and malaria abound. Hospitals to this extent victimized by the misdirected benevolence of their founders are rare, it is to be hoped; yet, on the other hand, the idea that a hospital is a hospital is so general that hospitals carefully adapted to the needs of the communities which they are intended to serve are probably not very common. Everyone realizes that a shoe may be very well made, of the best material, and according to the best designs, yet totally unsuited to the size and shape of a given foot and to the use desired. The principle that a hospital should be as carefully fitted to the needs of a community as a shoe is to the foot is new, however, that probably in the majority of instances, when a new hospital is to be built, a well meaning contributor or local committee sets out to collect "ideas" from hospitals held up as models, giving only secondary thought, if any, to the question whether these hospitals are adapted to the same local needs.

A second consideration emerges from the examination of the figures above referred to. The total hospital bed capacity of the country has increased enormously, yet relatively much less than the number of institutions. The average number of beds to an institution in 1867 was 13; today it is a little over 98. The absolute size of the large hospitals, such as Mount Sinai, New York, for example, in 1868 could "accommodate about 500 patients comfortably"; its present capacity is 500. Pennsylvania Hos-

pital in 1867 had 155 patients; it now can take care of 315. Since the increase in the total number of institutions has been great relatively to the increase in total bed capacity, and since the increase in the bed capacity of the large institutions has been absolutely great, therefore, it follows that the increase in number of small institutions must be enormous, and that the vast majority of hospitals in the country must be well under one hundred beds capacity. Furthermore, the idea of making a survey of the community before building a hospital, has found lodgment, if anywhere, in urban centers, and application to the foundation of large hospitals. A large institution can afford to employ a hospital expert, or a corps of experts, to make preliminary surveys before the plans are drawn. This is obviously out of the question for rural communities and small hospitals. . . .

The moral seems to be twofold: In the first place, there is still need for missionary work in spreading the hospital idea, but this missionary work needs to be directed now, not so much to convincing people of the value of hospitals as to teaching them the necessity of measuring the needs of the community before building or even planning a hospital. In the second place, since small hospitals so greatly outnumber the large institutions, and since cross-roads communities will never be able to command the service of high priced hospital experts, the crying need of the hospital situation today seems to be for an investigation of the hospital needs of various rural communities, with a view to discovering some general principles which may be applied in any specific instance. In no other way, apparently, shall we solve one of the most important, if not the most important, hospital problem of the day.

CONGRESS AND INFLUENZA

BILLS have been introduced into Congress by Senator Harding and Representative Fess of Ohio, for an appropriation of one and a half million dollars for the fight on influenza. These bills make concrete the recommendations of the section on preventive medicine of the American Medical Association.

There should be no delay in the passage of these bills. Effective measures are needed now to prepare against the possible recurrence of influenza. The bills should have been introduced and passed many weeks ago without any special recommendations. Common business sense should have dictated action. Failure to act is indicative of a form of disease which might be diagnosed by a layman as "political hookworm."

¹ Cammann, Henry J., and Camp, Hugh N.: *The Charities of New York, Brooklyn, and Staten Island*. Hurd and Houghton, New York, 1868.

THE ROMANCE OF SANITARY SCIENCE

BY JAMES A. TOBEY, B.S., NEW JERSEY STATE DEPARTMENT OF HEALTH, TRENTON, N. J.

THE science of sanitation is generally believed to be a recent one. The germ theory of disease has been developed and verified within the memory of living persons, and the important researches of Pasteur, Lister, and Koch in the latter part of the nineteenth century created a new science — bacteriology. These discoveries so enriched the field of preventive medicine, hygiene, and sanitation that the results of disease prevention have been greater in late years than ever before during the whole progress of mankind. Recent as are these attainments, however, the science of sanitation itself goes back into the dawn of history. It goes back to those magnificent civilizations of five thousand and more years ago, those civilizations forgotten so long and revealed only so recently. Its traces have been found in Assyria and Babylonia, Egypt and Crete, Greece and Rome; its story is the romance of sanitary science.

Beginnings of Medical Science

Medical science began with the earliest civilization and was thought by primitive people to have been the gift of the gods. Sanitation is, broadly speaking, a branch of medical science, but whereas medicine has aimed to cure diseases, the function of sanitation is to prevent their spread. The terms "public hygiene" and "sanitation" are practically synonymous, but hygiene by itself is a personal matter, and sanitation deals with the environment. Dissemination of disease is prevented by the safe disposal of human wastes, by obtaining an adequate and pure water supply, by control of the sick, and by the general cleanliness of man and his environment. In the beginning of things medicine was interwoven with magic, and disease was believed to be due to the evil influence of displeased demons. In spite of these notions, ancient peoples seemed to recognize the value of sanitation and their sanitary appliances were surprisingly similar to those of to-day.

THE HERITAGE OF CIVILIZATION IN DISEASE PREVENTION

The history of sanitation repeats itself. Having emerged from the darkness of the centuries following the decline of Rome, we now face the sunrise with its dazzling achievements in sanitary science. We have an honorable heritage and shall give to the world monuments as enduring in the glory of disease prevention as were those of the peoples of the past. To limit sickness to the minimum, to prolong life to the maximum, and reduce the unnecessary death rate of modern times—after all, that will be the real romance of sanitary science.

It is complimentary both to the present and to that past to call these devices "modern."

History begins about six thousand years ago. The earliest known civilization of the world was that of the ancient Sumerians, who inhabited the broad valley north of the Persian Gulf between the Tigris and Euphrates rivers, now called Mesopotamia. Recent excavations have shown that the dwellings of these people were pro-

vided with drains and sanitary conveniences. Since the country was flat and the soil sandy, the work was individual and not a community enterprise. No attempt was made to build sewers for these municipalities of six thousand years ago, but each householder constructed his own drain and cesspool in a manner similar to the Arabian of the present day. The Sumerians were succeeded by the Chaldean-Babylonian and Assyrian Empires, whose great capitols were at Babylon and Nineveh. Here, the whole city was sewered and also supplied with water brought from long distances through open channels. When it is considered that the city of London had no sewerage system until the eighteenth century after Christ, we must pause in admiration of these cities which date some twenty centuries before Christ.

Public Hygiene in Ancient Egypt

Another great civilization of ancient times was that which flourished in the valley of the Nile some three thousand years before Christ. Here are the land of the greatest structures ever built by man, the pyramids, and the world's most imposing temple, Karnak. We owe our knowledge of Egyptian customs to the patient work of the archaeologists and also to the writings of the Greek historian, Herodotus. The Egyptians worshiped the scarabaeus, or dung beetle, possibly recognizing its scavenging powers and its contribution to sanitation. Herodotus tells us that the Egyptians kept their houses clean, bathed frequently, and attempted to obtain un-

polluted water. Near the pyramids of Gizeh, which were built about 3000 B. C., is the well of Joseph. This well is excavated through solid rock to a depth of 297 feet and illustrates the efforts that the Egyptians would undertake in order to obtain pure water. Public hygiene as practised in this ancient empire had great influence on the habits of people who followed.

be infected. They recognized the sanitary significance of bathing, as is well illustrated by the biblical story of Namaan. In order to avoid infection from foods, they cooked all meats and vegetables and abstained from using certain meats which were considered unclean. They also had a code for social hygiene, a subject that has a sanitary significance as well as a moral aspect.



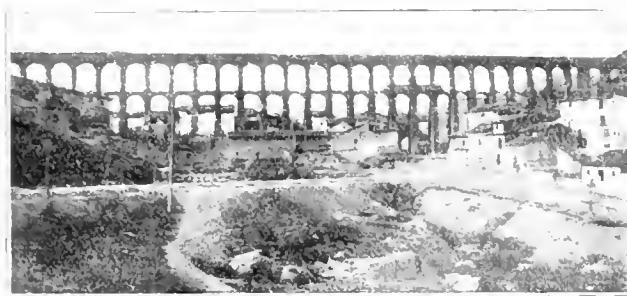
Aqua Claudia, Rome, the work of the fourth Roman emperor, whose name it bears, and his predecessor, Caligula. This system had its intake about thirty-eight miles (Roman) above the city and united with the Aqua Anio Novus seven miles from Rome. Claudius gave the length at 45 miles in the inscription on the Porta Maggiore, by which the channel was carried across the Via Praenestina and the Via Labicana. The channel varied in size at different points on its course. The bridges were of masonry with a substructure of brick-faced concrete. (Photo, Alinari. Reproduced from the Encyclopaedia Britannica by courtesy of the publishers.)

Two other civilizations of importance in antiquity were the Phoenician and the Hebrew, which existed side by side between the Mediterranean Sea and the Arabian Desert in the lands now called Syria and Palestine. Trade was carried on between the Egyptians and Babylonians and the country served as a middle land for these other two great empires. Egyptian manuscripts show that these peoples existed about seventeen centuries before Christ. The ancient Hebrews were the real founders of public health. The laws of Moses (born about 1600 B. C.) contained many hygienic ordinances, most of which apply as well to-day as they did when they were first promulgated. The influence of Egypt is shown by this passage from the Bible: "And Moses was learned in all the wisdom of the Egyptians and was mighty in words and deeds" (Acts vii-22). He prescribed few, if any, remedies for disease, his treatment being (1) prevention, (2) sanitation, and (3) trust in Nature. The Hebrews isolated persons afflicted with syphilis or leprosy, and burnt all excreta and any articles which might

The city of Jerusalem was well sewered and had a good water supply. Previous to the eighth century before Christ the city had two aqueducts, one from the pools of Solomon and the other from the pools of Hezekiah, outside the city walls. In 727 B.C. King Hezekiah built a vast reservoir, called the pool of Siloam, near the gates of Jerusalem. The existing water supply was insufficient to fill it, so he constructed a tunnel through the solid rock of a hill behind the city. His workmen began at both ends and met accurately in the middle. The magnitude of this undertaking is apparent when it is considered that the work was done with hand tools of a more or less primitive type.

The most extensive and elaborate sanitary engineering of remote times was that which has been brought to light again on the island of Crete. The palace of Broad Knossus, which dates from about 2100 B.C., has an amazingly complete system of drainage. Shafts lead from the main conduits to the roof where rain water was collected and used to flush the drains. These pipes,

some of which are still there, were of terra-cotta, were about two and a half feet long, tapering from a diameter of six inches to one of four and grooved to fit other sections. The main drains were about a yard wide by half a yard deep and were lined with cement. They were supplied with manholes throughout. The whole palace was



Roman aqueduct at Segovia, Spain. This structure has a length of 2,400 feet and stands 102 feet at its highest span. In the two tiers of masonry there are 100 arches. (Photo, Laureat y Cia. Reproduced from the Encyclopaedia Britannica by courtesy of the publishers.)

equipped with bathrooms and latrines and the system remained incomparable for four milleniums.

Writing of this ancient palace of the sea kings of the House of Minos, Doctor Evans, the archaeologist, says: "From the open court to the east and the narrower area that flanks the inner section of the hall, the light pours in between the piers and columns just as it did of old. In cooler tones it steals into the little bath room behind. It dimly illuminates the painted spiral frieze above its white gypsum dado, and falls below on the small, terra cotta bathtub, standing much as it was left some three and a half milleniums back. The little bath bears a painted design of a character that marks the close of the great 'Palace Style.' By whom was it last used? By a queen, perhaps, and mother for some 'Hope of Minos'—a hope that failed."

The connection of Crete with Egypt was found near the wall of another bath room in the palace. Here was discovered the lid of an Egyptian alabastron bearing the cartouche of a king, evidently one of the Hyksos, or Shepherds who overran Egypt in 1675 B. C. A similar cartouche on the breast of the carved figure of a lion was found in ancient Bagdad and is now in the British Museum.

The Persians under Cyrus the Great eventually conquered the civilized world. They, too, owed much to the Egyptians for their sanitary knowledge. They revered rivers and would not permit of their defilement. Cyrus (559-529 B.C.) was a wise commander and always took provisions and drinking water from home on his campaigns. He had the water boiled, indicating that the therapeutic value of this process was known to the

ancients. In a conversation with his father, Cyrus is quoted as saying: "I have heard and seen that those states which seek for good health educate physicians, and that commanders take with them physicians for the sake of the soldiers. I, too, therefore, as soon as my present expeditions were intrusted to me, gave my attention to the subject and thought that I had with me very competent physicians." To which his father replied: "But these physicians, my son, of whom thou speakest, are like menders of torn garments, and thus, they cure those who have fallen sick. Thy chief anxiety should be to provide for health, for thou oughtest to take care to prevent the army from falling into sickness at all." Compare the military hygiene of Cyrus with that of our own country in the Spanish war; fortunately, the black record of 1898 has been honorably amended by the excellent sanitary conditions of our army in the war with Germany.

Other nations which had well developed civilizations in early times were the Chinese and Hindus. The Hindus had rules of hygiene, but public health was unknown in China, as it is at the present day. Medicine in China began about 2800 B.C. with a treatise by the Emperor Schin-Nung and the ancient Chinese knew of inoculation against smallpox. Their traditional policy of aloofness probably accounts for their lack of sanitary knowledge. The deepest wells of antiquity



Aqueduct of Roquefavour, Marseilles, built in the early nineteenth century. (Photo reproduced from the Encyclopaedia Britannica by courtesy of the publishers.)

were dug in China, however, and travellers tell of wells which are 1,500 feet deep and date from early times.

The Druids of ancient Britain, who were contemporary with Abraham and Jacob, remote an-

cestors of Moses, were skilled in medicine and are believed to have practised sanitation. In America the oldest evidence of sanitary science is given by the wells along the valley of the Mississippi, which are believed to have been built by primitive peoples many centuries before Christ. One in particular in the hills of Yucatan is worthy of



Pont du Gard, Nîmes (Nemusus). This structure rises to a height of 160 feet at its highest span. It consists of three tiers of arches. In the lowest tier are five arches having a span of sixty feet and one with a span of seventy-five feet. The second tier has eleven arches, each with a span of seventy-five feet. The upper tier consists of a series of thirty-five smaller arches which carried the *specus*. Among the existing ruins of this type of Roman structure, it has no equal for lightness and boldness of design. (Photo, Neurdein. Reproduced from the Encyclopaedia Britannica by courtesy of the publishers.)

mention because it is bored to a depth of 100 feet and then through a horizontal gallery 2,700 feet long before water is reached.

The Greeks recognized the benefits of preserving health and their temples were usually situated in groves, near springs, and soon became health resorts. Excavations at the ancient cities of Mycenae and Tiryns, which were founded in the fourteenth century before Christ, have revealed great bath rooms. In 625 B. C. an engineer named Eupalinus constructed a tunnel 4,200 feet long and eight feet square in order to supply water to the city of Athens. The first sanitary engineering for Rome and Carthage was probably performed by Greek engineers, as the designs of all are similar.

The fifth century B. C. is called the golden age in Greece. Contemporary with Herodotus and Thucydides in history, with Aeschylus, Sophocles, and Euripides in the drama, Pindar in poetry, and Aristophanes in wit, were Empedocles, the naturalist, and Hippocrates of Cos, the "Father of Medicine." Empedocles performed a sanitary service for his native city of Agrigentum by cutting down a hill, thus letting in the north wind and so ridding the city of the plague. He also accomplished a similar service for the neighboring city of Selinus by draining a marsh. Hippocrates clarified medical science by his attitude toward health and disease. He wrote three books on hygiene and sanitation among his other numer-

ous works. He advocated the boiling or filtering of all drinking water. The Hippocratic oath is still administered to graduates of medicine about to enter the practice of their profession. In 431 B. C. occurred the plague of Athens and the story of it by Thucydides is the first record of any European epidemic.

Greece was conquered by Alexander in 330 B.C. During the decline of Greece two other empires were developing, Carthage and Rome. The latter eventually conquered Carthage, Greece and the East in turn.

Carthage is famous in sanitary science for having the oldest known cisterns. They were eighteen in number, each 100 feet long and about 20 feet deep. Fortunately, they were not destroyed when the Romans razed the city in 146 B.C. Cisterns are also mentioned in the Bible in Proverbs v-15: "Drink waters out of thine own cistern and running water out of thine own well." Carthage had an aqueduct leading from the springs in the Zaghorn Mountains to the city, a distance of about thirty-seven miles.



Piscina Mirabilis at Baia, one of the *piscinae limariae* or filtration and settling tanks outside the city of Rome, a reservoir which is covered by a vaulted roof supported on forty-eight pillars and perforated to allow the escape of foul air. (Photo, Brogi. Reproduced from the Encyclopaedia Britannica by courtesy of the publishers.)

The Romans are notable for the grandeur of their engineering, and much of it was devoted to sanitation. The city had sewers as early as 800 B.C. In 735 B.C. was built the famous Cloaca Maxima, which is still in use to-day, 2,654 years

later. It is 12 feet high, 11 feet wide and is lined with cement. Every Roman street had its lateral sewer diminishing in size as the distance from the main sewer increased. Each house was connected with the sewer, but as the drainage system did not extend above the first story and many of the houses were lofty, the inhabitants adopted the unpleasant system of throwing excreta from their windows into the public streets to the detri-



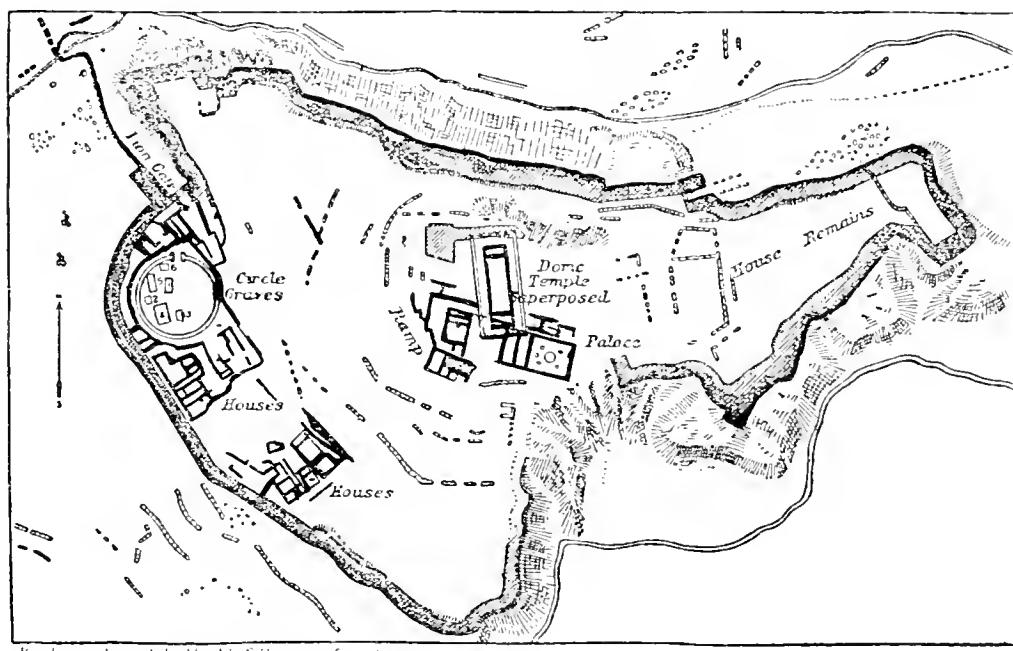
Aqua Marcia, Rome, a waterway which traversed $61\frac{3}{4}$ miles, of which $54\frac{1}{4}$ miles were underground. This aqueduct was reconstructed in 1869-70 under the name of Aequa Pia or Marcia-Pia. (Photo, Dr. T. Ashby. Reproduced from the Encyclopaedia Britannica by courtesy of the publishers.)

ment and discomfort of the passerby. This disgusting habit became such a nuisance that eventually a law was passed prohibiting the practice.

The great aqueducts of Rome are monuments to the genius of their engineers. Like the sewers, some of them are still in use. The story of the first nine aqueducts has been told by Frontinus, a hydraulic engineer and water commissioner of

Rome, who wrote in 97 A.D. He says: "Will any body compare the idle pyramids or those other useless though much renowned works of the Greeks with these aqueducts, with these many indispensable structures?" Prior to the building of the aqueducts the Romans got their water from the sewage-polluted Tiber and from wells, springs and cisterns. The value of pure water was recognized, however, and the citizens were lavish in their expenditures to secure it. They must have realized the truth of the phrase that "public health is purchasable," a fact which many modern communities would do well to recognize for their own benefit.

The first aqueduct was built in 312 B.C. by Appius Clandius, who also is famous for the Appian Way. It was eleven Roman miles (each 4,854 feet) long, most of it being underground. During the next six hundred years twenty aqueducts of varying lengths were built for Rome. The second was in 272 B.C. and M. Aurius Dentatus was the builder; it was 43 miles long. The third was called the Marcia after its constructor, Quintus Marcius Rex, and was 61 miles in length, 7 miles above ground. It furnished the coldest water of all that were built. Next was the Tepula (127 B.C.); then the Julia (35 B.C.). The last three joined near the city and were carried in three stories, in which form they still exist entire. The best known of the aqueducts are the Claudio and the Anio Novus, completed in 50 and 52 A.D., respectively. The former was 46 miles long, the



Plan of the Citadel of Mycenae, the proud city of ancient Greece, founded in the fourteenth century B.C., where excavations have revealed great baths. The desire of the Greeks to promote the health of their population led to the erection of temples situated usually in groves and near springs, which became popular gathering places. (Reproduced from the Encyclopaedia Britannica by courtesy of the publishers.)

latter 58 and together they doubled the water supply of the city. Besides the aqueducts in their capitol the Romans built them in the colonies in Spain, Africa, Greece, and France. Of these, that at Segovia, Spain, is the most perfect remaining. It is of stone without mortar, is 2,400 feet long, and at one point is 100 feet above ground. There are 109 arches. The structure still supplies the city with water.

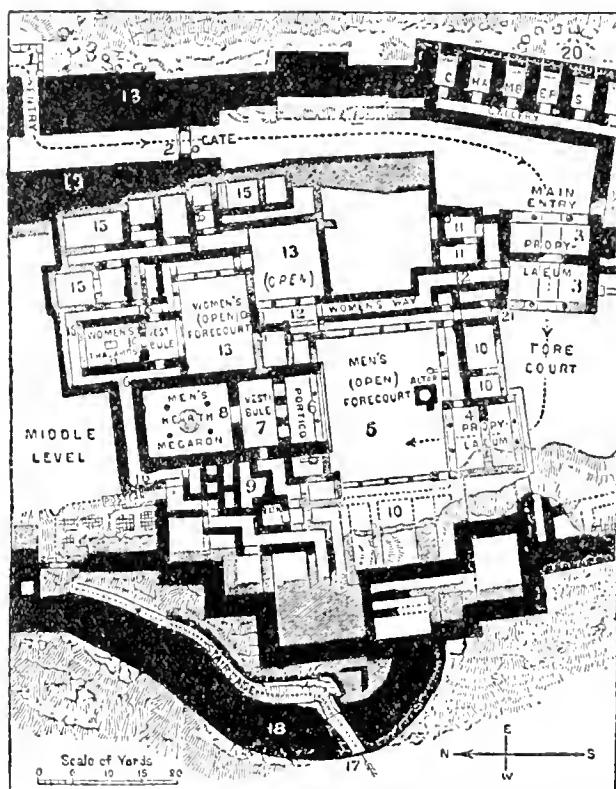
In addition to the aqueducts, the Romans had reservoirs, some of them public and some private. When a number of individuals received a water grant they combined to establish a reservoir for their own use. Each aqueduct was provided with a main reservoir and a number of smaller ones at different places in the section which was supplied by it. One of the principal reservoirs was on the Esquiline Hill. It was 200 feet long and 130 feet wide, and was covered by a vaulted roof, supported on 48 pillars. The authorities must have understood the principle that storage of water where the light is excluded prevents the growth of objectional vegetation and algae.

Bathing was a fine art in Rome and ultimately contributed to the downfall of the empire. The inference should not be drawn from this statement that bathing is detrimental to a nation because, of course, the practice is necessary to hygiene. The Romans made bathing a luxury rather than a procedure to secure cleanliness. Unlike the Greeks, who considered warm water effeminate, the Romans had hot water and anointed the body with oils and perfume. In the later days of the empire men and women bathed together promiscuously in public. The buildings devoted to the pastime were splendid and contained many rooms. The Diocletian baths had accommodations for 3,200 persons at one time.

The ruins of Pompeii also show magnificent baths. The city had a water supply which is estimated to date from the fifth century before Christ. There were a great aqueduct and a complete system of water flushed latrines and sewers. The Roman sewerage systems differed from the Cretan only in the fact that the former used running water from the city supply to flush the toilets, while the latter depended upon rain water. There is a difference of two thousand years between the two, yet they are essentially the same. Furthermore, both resemble the modern.

The Dark Ages followed the downfall of Rome and sanitation suffered a retrogression. Filth and uncleanness reigned supreme and as a consequence plague and pestilence scourged Europe. The Black Death in the fourteenth century A.D. carried off nearly half of the total population of that continent. It seems as if a catastrophe is

necessary to awake peoples to the necessity of preventing such exigencies. The cholera epidemics of the middle of the nineteenth century resulted in a pure water supply and an adequate sewage disposal in London. The many typhoid epidemics traced to polluted water at the end of the nineteenth century served to bring about sanitary reforms in the United States. Within the last few years sanitation has been coming into



Plan of the palace in the Upper Part of Tiryns, the ancient Peloponnesian city, illustrating the arrangement of the bathroom and small retiring rooms, with connecting passageways. The bathroom is 10 feet x 12 feet, with its floor formed of one great slab of stone, sloped so as to drain out at one side through a pipe.

- (1) Main gate in the outer wall; (2) Inner gate, approached between massive walls; (3) Main propylaeum; (4) Inner propylaeum; (5) Court surrounded by a colonnade on three sides, the altar to Zeus Hereus is by the entrance; (6) Portico of the Megaron; (7) Inner porch; (8) Megaron, with roof supported on four columns, and the circular hearth in the middle; (9) Bathroom and small retiring rooms; (10) Chambers round the great court; (11) Guard chambers by the main propylaeum; (12) Passage from the main propylaeum to the second house; (13) Courts of the second house; (14) Megaron; (15) Chambers; (16) Passage to the rock-cut stairs; (17) Small postern door in the semicircular bastion, approached by flight of rock-cut steps; (18) Massive outer wall of city; (19) Inner wall to guard the entrance passage; (20) Part of outer wall, with intermediate passage and rows of chambers. (Reproduced from the *Encyclopaedia Britannica* by courtesy of the publishers.)

its own in this country and the future should be even more bright.

The history of sanitation repeats itself. We have an honorable heritage and shall give to the world monuments as enduring in the glory of disease prevention as were those of the peoples of the past. To limit sickness to the minimum, to prolong life to the maximum, and reduce the unnecessary death rate of modern times—after all, that will be the real romance of sanitary science.

DISABILITY BY AGE AND OCCUPATION

BY BORIS EMMET, PH.D., MANAGER, LABOR DEPARTMENT, NEW YORK DRESS AND WAIST MANUFACTURERS' ASSOCIATION, NEW YORK CITY; FORMERLY STATISTICAL EXPERT, BUREAU OF LABOR STATISTICS, WASHINGTON, D. C.

THIS article is based upon data contained in an unpublished study made recently by the United States Bureau of Labor Statistics. To arrive at the actual extent of sickness among wage earners, this bureau made an intensive actuarial examination of the disability experience of the Workmen's Sick and Death Benefit Fund of America, a mutual sick and death benefit association, in existence since 1884, and operating on a national scale. The society confines its disability membership almost exclusively to male wage earners, eighteen years of age and over. The disability experience examined represents the average annual sickness for the five-year period ending December 31, 1916, and is, therefore, free from accidental variations, such as, for instance, those caused by the Spanish Influenza epidemic of last year.

First Exact Estimate of Disability

The society pays a sick benefit of \$1.50 per day, or \$9.00 per week, for all disabilities including accidents of various kinds and descriptions. Benefits are paid beginning with the filing of the physician's disability certificate. There is, therefore, no waiting period. The study does not include sickness extending over fifty-two weeks. This defect is, however, negligible for the purpose of determining average disability.

With the exception of the estimates furnished by the recent health surveys¹ of the Metropolitan Life Insurance Company, and some fragmentary data based upon the experi-

This study is an actual measurement of the disability experience of 40,000 wage earners in forty-two occupations. Credit is acknowledged to Royal Meeker, United States Commissioner of Labor Statistics, for permission to compile and publish the data upon which this article is based. Accepted estimates of average disability which have been deduced from health surveys or fragmentary data relating to selected groups, are lowered in this study. Careful analyses have been undertaken to determine the relative disability by occupation with a view to placing the responsibility for sickness and obtaining an equitable distribution of the burden.

The society confines its disability membership almost exclusively to male wage earners, eighteen years of age and over. The disability experience examined represents the average annual sickness for the five-year period ending December 31, 1916, and is, therefore, free from accidental variations, such as, for instance, those caused by the Spanish Influenza epidemic of last year.

ence of certain establishment funds, no exact measurement has ever been made of the annual average number of disability days per wage earner by age and occupation in the United States. The study of the Federal Bureau of Labor Statistics upon which this article is based furnishes, therefore, the first official and exact measurement of such disability among wage earners.

The common prevailing estimate of the annual average number of disability days per person—an estimate usually acquiesced in by the proponents and opponents of health insurance—has been nine days. This figure is based upon fragmentary data as well as on the general assumption that the extent of sickness in the United States is similar to the sickness experience of European countries which have state health insurance schemes in operation, notably Germany. In this connection it is to be noted that the data from the establishment fund studies is only for days compensated, and not for total days of sickness.

The results obtained in connection with the study, the results of which are presented herewith show an average annual number of disability days

of 6.6—considerably below the prevailing mentioned estimates. The figure is to be considered as reliable because (a) it is an actual measurement and not an estimate; (b) it is based upon the disability experience of more than forty thousand wage earning persons engaged in over forty-two separate and distinct occupations. The bureau figure, 6.6, represents all disability

CHART I
AVERAGE ANNUAL NUMBER OF DISABILITY DAYS PER MEMBER (ALL OCCUPATIONS) IN CERTAIN AGE GROUPS.

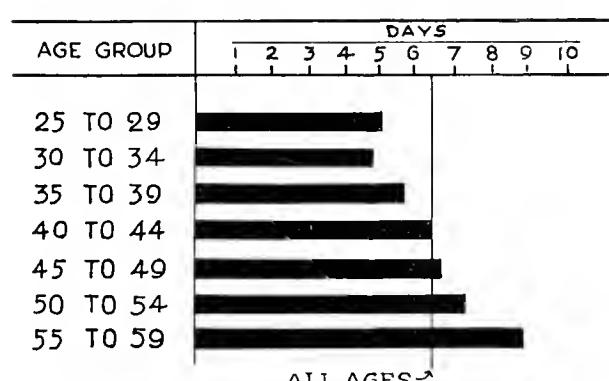


Chart showing ratio of sickness in the various age groups.

and approximates closely the estimates made recently in connection with the sickness surveys of the Metropolitan Life Insurance Company¹—6.8. Seven days, or thereabout may, therefore, be said to be the annual average number of disability days per wage earner.

Age and Disability

Table I gives the average annual number of disability days per member of certain indicated age groups. As may be seen from the column entitled "average number of disability days per member," the extent of sickness up to the age of 44 is slightly below the average. Beginning with the age group of 45 to 49, the extent of sickness is progressively on the increase. The disability figures show an unmistakable tendency for sickness to increase with age. This tendency is illustrated in Chart I, accompanying Table I.

The figures of the table and the chart are so clear in their trend that they need not be commented upon at length. The influence of age upon disability is shown in absolute numbers. Table II and Chart II accompanying it represent an attempt to show the influence of the age factor upon disability.

The standard of comparison in Table II is the average number of disability days for all age groups, that is, for the society as a whole. In the calculations made, the disability of the entire organization, per member, or per disabled person, is equivalent to 100. The disability of each particular age group is then reduced to a percentage of this standard unit and an index number thus arrived at.

¹ Sickness Survey of Principal Cities in Pennsylvania and West Virginia, Sixth Community Sickness Survey, by Lee K. Franklin and Louis L. Dublin, Metropolitan Life Insurance Co., N. Y., 1931, pp. 76-78.

TABLE I
AVERAGE ANNUAL NUMBER OF DISABILITY DAYS PER MEMBER AND DISABLED PERSON OF EACH CLASSIFIED FIVE-YEAR AGE GROUP

Age Group	Total No. of disability days	Total No. of members affected	Number of disabled persons	Average No. of disability days per member	Average No. of disability days per disabled person
Under 20	2,108	466	127	5.2	16.6
20 to 24.....	34,296	7,168	1,778	4.8	19.3
25 to 29.....	76,619	15,267	3,574	5.0	21.4
30 to 34.....	106,162	21,886	4,862	4.9	21.8
35 to 39.....	155,209	27,496	6,197	5.6	25.0
40 to 44.....	196,206	30,736	7,104	6.1	27.6
45 to 49.....	206,860	31,579	7,150	6.6	28.9
50 to 54.....	189,850	25,484	6,044	7.4	31.4
55 to 59.....	146,777	16,229	4,168	9.0	35.2
60 to 64.....	80,459	6,639	1,859	12.0	43.3
65 to 69.....	25,361	1,843	557	13.3	45.5
70 and over..	3,417	225	65	15.2	52.6
Total	1,223,324	185,018	43,485	6.6	28.1

It will be noted that the number of disability days increases progressively toward the higher age groups.

CHART II

PER CENT DEVIATIONS OF DISABILITY DAYS OF INDICATED AGE GROUPS,
FROM THE AVERAGE NUMBER OF DISABILITY DAYS FOR ALL AGE GROUPS.
(AVERAGE DAYS OF DISABILITY FOR ALL AGE GROUPS = 100)

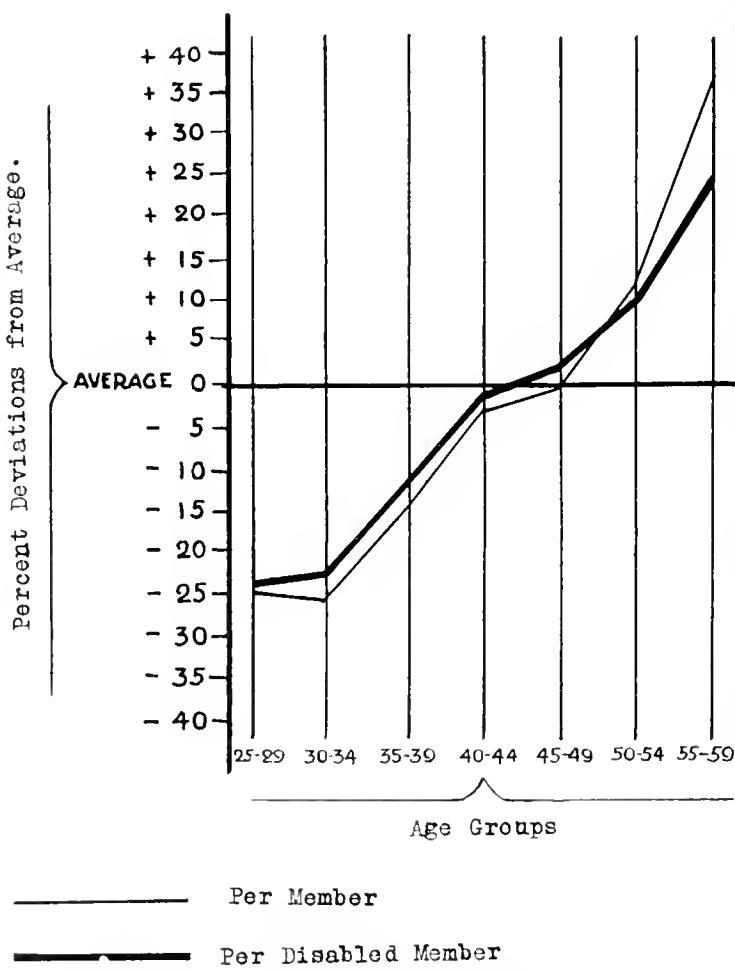


Chart setting forth the influence of the age factor upon disability.

With reference to average disability per member, each age group up to and including 45 to 49, shows a negative deviation from the average, that is, an extent of sickness below the average. The least extent of sickness, 27.3 per cent less than the average, is found in group 20 to 24. The extent of disability increases with age. Age group 45 to 49 shows an extent of sickness equivalent approximately to the average. This is to be expected in view of the fact that the average of the membership is about 43 years. The extent of disability in the age group 55 to 59 is about one-third greater than the average, and in age group 60 to 64 more than four-fifths. Age groups 65 to 69 and 70 and over show disability extents more than twice greater than at the average age.

The figures given in the last column of the table indicate that the duration of disability does not increase with increase of age as rapidly as the average number of disability days per member. The average is approximated in group 45 to 49. In the 55 to 59 age group the number of disability days per disabled person is one-fourth greater than the average. Age

groups 60 to 64, 65 to 69, and 70 and over, show durations of disability 54.1 per cent, 61.9 per cent, 87.2 per cent, respectively, greater than the average.

An attempt has been made in Table III to establish the relative disability responsibility of certain age groups.

CHART III

CORRECTED ANNUAL DISABILITY DAYS FOR EACH OCCUPATION (AGE GROUPS, 25 - 59).

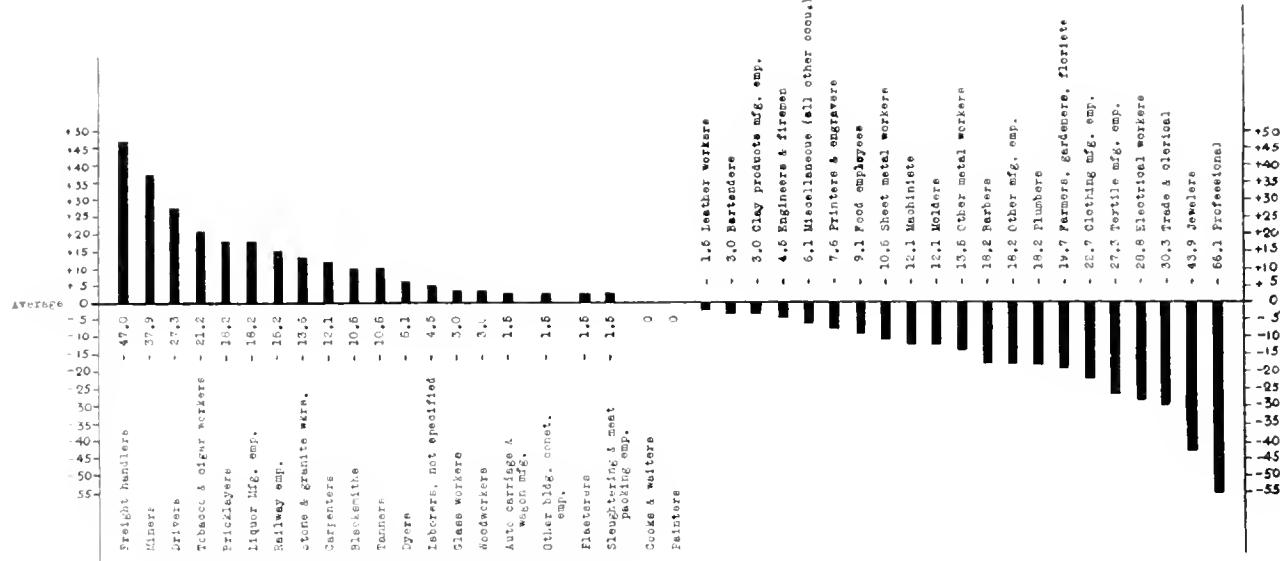
Occupation	Average Annual Number Disability Days Per Member									
	1	2	3	4	5	6	7	8	9	10
1. Miners	:	:	:	:	:	:	:	:	:	9.7
2. Freight handlers	:	:	:	:	:	:	:	:	:	9.6
3. Drivers	:	:	:	:	:	:	:	:	:	8.6
4. Railway Employees	:	:	:	:	:	:	:	:	:	8.4
6. Liquor Manufacturing Emp.	:	:	:	:	:	7.8	:	:	:	7.9
6. Stone & Granite	:	:	:	:	:	:	:	:	:	7.5
7. Bricklayers	:	:	:	:	:	:	:	:	:	7.1
8. Glass Workers	:	:	:	:	:	:	:	:	:	7.1
9. Laborers, not specified	:	:	:	:	:	:	:	:	:	6.9
10. Blacksmiths	:	:	:	:	:	:	:	:	:	6.9
11. Slaughtering & meat packing emp.	:	:	:	:	:	:	:	:	:	6.9
12. Tobacco & Cigars	:	:	:	:	:	:	:	:	:	6.8
13. Carpenters	:	:	:	:	:	:	:	:	:	6.7
14. Other Building Construction emp.	:	:	:	:	:	:	:	:	:	6.6
15. Clay Products Mfg. emp.	:	:	:	:	:	:	:	:	:	6.6
16. Painters	:	:	:	:	:	:	:	:	:	6.4
17. Dyers	:	:	:	:	:	:	:	:	:	6.4
18. Cooks & Waiters	:	:	:	:	:	:	:	:	:	6.2
19. Food employees	:	:	:	:	:	:	:	:	:	6.2
20. Machinists	:	:	:	:	:	:	:	:	:	6.1
21. Printers & Engravers	:	:	:	:	:	:	:	:	:	6.1
22. Woodworkers	:	:	:	:	:	:	:	:	:	6.1
23. Bartenders	:	:	:	:	:	:	:	:	:	6.0
24. Engineers & Firemen	:	:	:	:	:	:	:	:	:	6.0
25. Barbers	:	:	:	:	:	:	:	:	:	5.9
26. Auto, carriage & wagon mfg. emp.	:	:	:	:	:	:	:	:	:	5.9
27. Tanners	:	:	:	:	:	:	:	:	:	5.8
28. Leather Workers	:	:	:	:	:	:	:	:	:	6.8
29. Molders	:	:	:	:	:	:	:	:	:	5.8
30. All other occupations	:	:	:	:	:	:	:	:	:	5.7
31. Plasterers	:	:	:	:	:	:	:	:	:	5.6
32. Plumbers	:	:	:	:	:	:	:	:	:	5.6
33. Sheet Metal Workers	:	:	:	:	:	:	:	:	:	6.6
34. Other Metal Workers	:	:	:	:	:	:	:	:	:	5.4
35. Farmers, Gardeners, Florists	:	:	:	:	:	:	:	:	:	5.3
36. Other Manufacturing emp.	:	:	:	:	:	:	:	:	:	5.1
37. Electrical Workers	:	:	:	:	:	:	:	:	:	4.8
38. Trade & Clerical	:	:	:	:	:	:	:	:	:	4.7
39. Textile Manufacturing emp.	:	:	:	:	:	:	:	:	:	4.5
40. Clothing Manufacturing emp.	:	:	:	:	:	:	:	:	:	4.4
41. Jewelers	:	:	:	:	:	:	:	:	:	3.6
42. Professional	:	:	:	:	:	:	:	:	:	2.6
43. All occupations	:	:	:	:	:	:	:	:	:	6.4

The above chart sets out more clearly the variations of disability by industrial groups worked out in Table IV.

The relative disability responsibility is found by comparing the strength, the per cent of total, of each group in the organization with the proportion of disability days for which it is responsible. Without the presence of disability variations due to age, the per cent strength of each group should be equivalent to the per cent of disability days caused by it. For this reason, it may be said, that the extent of discrepancy between the two figures indicates more or less correctly the relative disability responsibility of the unit. Age group "under 20," while 0.22 per cent strong, was responsible only for 0.17 per cent of the disability days. On the other hand, age group "70 and over," only 0.12 per cent strong, was responsible for an extent of sickness more than twice greater than its propor-

CHART IV

PERCENT DEVIATION OF AVERAGE ANNUAL DISABILITY DAYS PER MEMBER OF EACH INDICATED OCCUPATION FROM THE AVERAGE ANNUAL DISABILITY DAYS PER MEMBER FOR ALL OCCUPATIONS. (AVERAGE DAYS OF DISABILITY PER MEMBER OF ALL OCCUPATIONS = 100)



The deviations in the number of disability days from the average for all occupations is an index as to the hazards of the various occupations. It is highest for freight handlers, and lowest among professional employees.

tion, or 0.28 per cent. Age group 30 to 34 appears to have been the least costly to the society; it was 11.83 per cent strong, but responsible only for 8.68 per cent of the disability days.

Occupation and Disability

The figures presented in the following section indicate that, with a few exceptions, occupational disability consists largely of industrial accidents.

TABLE II

PER CENT DEVIATIONS OF DISABILITY DAYS OF EACH INDICATED AGE GROUP FROM THE AVERAGE NUMBER OF DISABILITY DAYS FOR ALL AGE GROUPS

(Average days of disability for all age groups = 100)

Age Group	Per Member		Per Disabled Person	
	Average number of disability days	Per cent of deviation from average of all indicated age groups	Average number of disability days	Per cent of deviation from average of all indicated age groups
Under 20	5.2	+ 21.2	16.6	+ 10.9
20 to 24	4.8	+ 27.3	19.0	+ 31.3
25 to 29	5.0	+ 24.2	21.4	+ 23.8
30 to 34	4.9	+ 25.2	21.7	+ 22.4
35 to 39	5.6	+ 15.1	25.0	+ 11.0
40 to 44	6.1	+ 3.9	27.6	+ 1.8
45 to 49	6.6	None	28.9	+ 2.9
50 to 54	7.4	+ 12.1	31.4	+ 11.7
55 to 59	9.0	+ 35.4	35.2	+ 25.3
60 to 64	12.0	+ 81.8	43.3	+ 54.1
65 to 69	13.8	+ 10.1	45.5	+ 61.9
70 and over	15.2	+ 130.3	52.6	+ 87.2
Average, all age groups	6.6	None	28.1	None

What may be considered as the normal average of sickness and disability is found in age group 45 to 49, the average age for the whole membership being 43 years.

One of the exceptions, more apparent than real, seems to be tobacco and cigar workers who, because of their work, are known to be frequently affected with tuberculosis, which is in these workers an industrial disease. The group of workers shows an average disability of 8.01 days per year per worker as against 6.61 days per year, which is the average for all occupations.

Table IV shows the average annual number of disability days per member. Both crude (uncorrected for age distribution) and corrected (for age distribution) figures are presented.

TABLE III

RELATIVE DISABILITY RESPONSIBILITY OF EACH CLASSIFIED FIVE-YEAR AGE GROUP

Age Group	Total number of members	Per cent of total membership	Aggregate of disability days of age group	Per cent of disability of entire membership
Under 20	406	0.22	2,108	0.17
20 to 24	7,168	3.87	34,296	2.80
25 to 29	15,267	8.25	76,619	6.26
30 to 34	21,886	11.83	106,162	8.65
35 to 39	27,196	14.86	155,209	12.65
40 to 44	30,746	16.62	196,205	16.04
45 to 49	31,579	17.77	206,860	16.91
50 to 54	25,484	13.77	189,550	15.52
55 to 59	16,229	8.77	146,777	12.00
60 to 64	6,689	3.62	80,459	6.58
65 to 69	1,843	1.00	25,363	2.07
70 and over	225	0.12	3,417	0.28
Total	185,018	100.00	1,223,324	100.00

The disability responsibility by age groups is developed in this table. The figures show that the age group 30 to 34 accounts for the lowest percentage of disability.

Chart III illustrates more clearly the facts shown in Table IV.

In Table IV and Chart III occupational disability is shown in order of magnitude. Miners show the highest annual average number of disability days, 9.7, as against 6.4, the average for all occupations. Freight handlers are the next group in point of disability, with an average number of disability days per member of 9.6 days per year. Drivers, with an average of 8.6 days of disability per member come next. Jewelers and professional workers show the least extent of sickness 3.6 and 2.6 days, respectively, per year. The high disability extents of the first three groups is accounted for no doubt by the

hazardous character of the work which makes for frequent industrial accidents.

Table V shows still more clearly the extent of occupational disability.

High Disability in Some Groups

The table shows the per cent deviations of the average annual number of disability days of each occupation from the average annual number of disability for all occupations. The extent of deviation from the average indicates the so-called healthfulness of the group. A negative variation from the average indicates better health or less sickness, while a positive deviation indicates more disability; that is, less health.

TABLE IV

CRUDE AND CORRECTED ANNUAL NUMBER OF DISABILITY DAYS PER MEMBER IN CERTAIN AGE GROUPS (25-59)

Occupation	Annual average number of disability days per member	
	Crude (irrespective of specific age distribution within occupation)	Corrected for age factor according to method
1. Auto, carriage and wagon mfrg. employees	5.99	5.86
2. Barbers	5.57	5.88
3. Bartenders	6.17	5.98
4. Blacksmiths	7.09	6.89
5. Bricklayers	7.35	7.13
6. Carpenters	6.91	6.69
7. Clay products manufacturing employees	6.44	6.55
8. Clothing manufacturing employees	4.66	4.44
9. Cooks and waiters	6.38	6.15
10. Drivers	8.46	8.59
11. Dyers	7.06	6.44
12. Electrical workers	4.64	4.79
13. Engineers and firemen	6.05	6.01
14. Farmers, gardeners, florists	5.22	5.28
15. Food employees	5.94	6.22
16. Freight-handlers	9.61	9.56
17. Glass workers	6.81	7.09
18. Jewelers	3.55	3.59
19. Laborers, not specified	6.88	6.92
20. Leather workers	5.98	6.75
21. Liquor manufacturing employees	7.76	7.94
22. Machinists	5.82	6.11
23. Miners	9.16	9.67
24. Miscellaneous (all other occupations)	5.69	5.72
25. Molders	5.71	6.84
26. Other building construction employees	6.62	6.57
27. Other manufacturing employees	5.12	6.14
28. Other metal workers	6.30	6.36
29. Painters	6.42	6.35
30. Plasterers	5.51	5.62
31. Plumbers	6.05	5.66
32. Printers and engravers	6.02	6.10
33. Professional	2.43	2.65
34. Railway employees	7.80	8.37
35. Sheet metal workers	6.72	6.66
36. Slaughtering and meat packing employees	6.45	6.86
37. Stone and granite workers	7.69	7.53
38. Tanners	6.61	5.80
39. Textile manufacturing employees	4.59	4.49
40. Tobacco and cigar workers	7.03	6.80
41. Trade and clerical	4.54	4.70
42. Woodworkers	6.48	6.14

A study is made in this tabulation of the disability by industrial groups in an effort to determine the influence of occupational diseases upon the normal averages.

TABLE V

PER CENT DEVIATIONS OF AVERAGE ANNUAL DISABILITY DAYS OF EACH INDICATED OCCUPATION FROM THE AVERAGE ANNUAL DISABILITY DAYS OF ALL OCCUPATIONS

(Average Days of Disability for all Occupations = 100)

Occupation	Average number of disability days	Per Member		Per Disabled Person	
		Per cent deviation from average of all occupations	Average number of disability days	Per cent deviation from average of all occupations	Per cent deviation from average of all occupations
1. Auto, carriage and wagon mfg. employees	6.7	+ 1.5	27.5	- 2.1	
2. Barbers	5.5	- 18.2	29.7	+ 5.7	
3. Bartenders	6.5	- 3.0	36.6	+ 30.2	
4. Blacksmiths	7.3	+ 10.6	29.0	+ 3.2	
5. Bricklayers	7.8	+ 18.2	32.6	+ 16.0	
6. Carpenters	7.4	+ 12.1	30.7	+ 9.3	
7. Clay products manufacturing employees	6.4	- 3.0	28.9	+ 2.8	
8. Clothing manufacturing employees	5.1	- 22.7	28.0	- 0.4	
9. Cooks and waiters	6.6	None	32.0	+ 13.9	
10. Drivers	8.4	+ 27.3	29.2	+ 3.9	
11. Dyers	7.0	+ 6.1	32.1	+ 14.2	
12. Electrical workers	4.8	- 28.8	21.9	- 22.1	
13. Engineers and firemen	6.3	- 4.5	28.0	- 0.4	
14. Farmers, gardeners and florists	5.3	- 19.7	26.1	- 7.1	
15. Food employees	6.0	- 9.1	29.1	+ 3.5	
16. Freight handlers	9.7	+ 47.0	35.3	+ 26.6	
17. Glass workers	6.8	+ 3.0	29.2	+ 3.9	
18. Jewelers	3.7	- 13.9	26.1	- 7.1	
19. Laborers, not specified	6.9	+ 4.5	25.2	- 10.3	
20. Leather workers	6.5	- 1.5	29.9	+ 6.4	
21. Liquor manufacturing employees	7.8	+ 18.2	27.6	- 2.1	
22. Machinists	5.8	- 12.1	26.1	- 7.1	
23. Miners	9.1	+ 37.9	28.9	+ 2.8	
24. Miscellaneous (all other occupations)	6.2	- 6.1	27.4	- 2.5	
25. Molders	5.8	- 12.1	22.5	- 19.9	
26. Other building construction employees	6.7	+ 1.5	32.4	+ 15.3	
27. Other manufacturing employees	5.4	- 18.2	25.9	- 7.8	
28. Other metal workers	5.7	- 13.6	24.4	- 13.2	
29. Painters	6.6	None	31.2	+ 11.0	
30. Plasterers	6.7	+ 1.5	34.4	+ 22.4	
31. Plumbers	5.4	- 18.2	24.0	- 14.6	
32. Printers and engravers	6.1	- 7.6	34.8	+ 23.8	
33. Professional	2.9	- 56.1	24.0	- 14.6	
34. Railway employees	7.6	+ 15.2	29.7	+ 5.7	
35. Sheet metal workers	5.9	- 10.6	26.9	- 4.3	
36. Slaughtering and meat packing employees	6.7	+ 1.5	28.4	+ 1.1	
37. Stone and granite workers	7.5	+ 13.6	32.2	+ 14.6	
38. Tanners	7.3	+ 10.6	26.8	+ 2.5	
39. Textile manufacturing employees	4.9	- 27.3	26.3	- 6.4	
40. Tobacco and cigar workers	8.0	+ 21.2	31.0	+ 10.3	
41. Trade and clerical	4.6	- 30.3	27.2	- 3.2	
42. Woodworkers	6.8	+ 3.0	31.1	+ 10.7	
Average, all occupations		6.6	None	28.1	None

The comparison of disability variations from the average for the several occupations would seem to be a fair indication of the influence of occupational disease and accidents.

The figures show the following facts regarding the extent of disability shown by the average annual number of disability days per member. The largest average number of disability days, 9.7 per year, or 47 per cent greater than the average, was found among freight handlers. This group of members had an average of 40, or about three years less than the average for the society. The high disability rate is, therefore, to be accounted for by sickness due to accidents and physical overstrain which are known to be very frequent because of the character of the occupation. The same point may be made regarding the miners, who show the next highest average number of disability days, 9.1 per member, or 37.9 per cent greater than the average for the entire society. Drivers, with an average age of 42 or about one year below that of the society, show an average

of disability days per member of 8.4 days, or 27.3 per cent greater than the average. Professional employees, jewelers, trade, and clerical employees appear to be, in the order named, the least sickly workers. Respectively, these occupations show the following extents of sickness below the average: Professional, 56.1 per cent; jewelers, 43.9 per cent; trade and clerical, 30.3 per cent. These figures are graphically illustrated in Chart IV. Table VI shows the relative disability responsibility of each occupation.

The relative disability responsibility of each occupation is shown in Table VI by comparing the strength of the occupation, per cent of total membership, with the relative number of disability days charged up to it. Without the presence of disability variations due to the occupational factor, and incidental to it specific age distribution, the per cent strength of each group should be equal to the proportion of disability days charged against it. The extent of discrepancy between the two figures constitutes, therefore, a correct measurement of the disability responsibility of the occupation. Such an illustration is furnished by the first occupation shown in the table, carriage and wagon manufacturing employees. This occupation was 0.4 per cent strong, and was responsible for 0.4 per cent of the total of disability days. It thus supported itself. The barbers, though 0.67 per cent strong, were responsible for an extent of sickness less than their respective strength—only 0.55 per cent of the total disability days. This means that some proportion of the income derived from the barbers was used to support an occupation which had a disability extent greater, relatively, than its strength. The miners present just such a group. While constituting only 3.82 per cent of the membership, they were responsible for 5.25 per cent of the total of disability days.

Italy Still Fighting Tuberculosis

Italy is strenuously continuing the fight against tuberculosis since the declaration of peace, having taken over the work started by the American Red Cross during the conflict. The armies continue to contribute their quota of patients. The Central Sanitary Commission for Anti-Tuberculosis Activity was started late in 1917, and formed the basis of the present organization. A social health bureau also has been formed in Rome, under the Red Cross, from which workers are sent out, functioning through local chapters. Twelve hospitals afford accommodations for 2,500 patients. They are favorably located for climate and cover three types of cases, the curable, those more advanced, and those in the last stages. A hospital for children recently has been opened in Rome, also several nursery-schools for those of tuberculous tendency. The American Red Cross operated twenty-two military hospitals with 14,326 beds occupied when fighting ceased.

TABLE VI

RELATIVE DISABILITY RESPONSIBILITY OF EACH OCCUPATION (ALL AGE GROUPS)

Occupation.	Total number of members	Per cent of total membership	Aggregate of disability days of occupation	Per cent of disability days of entire membership
1. Auto., carriage and wagon mfg. employees...	735	0.40	4,954	0.40
2. Barbers	1,242	0.67	6,770	0.55
3. Bartenders	2,290	1.24	14,772	1.21
4. Blacksmiths	2,053	1.11	15,022	1.23
5. Blacklayers	2,241	1.21	17,566	1.44
6. Carpenters	11,662	6.31	86,632	7.08
7. Clay products mfg. employees	652	0.35	4,161	0.34
8. Clothing manufacturing employees	4,847	2.62	24,690	2.02
9. Cooks and waiters	2,335	1.26	15,501	1.27
10. Drivers	6,890	3.72	57,731	4.12
11. Divers	748	0.40	5,263	0.43
12. Electrical workers	988	0.53	4,699	0.38
13. Engineers and firemen	3,387	1.83	21,460	1.75
14. Farmers, gardeners and florists	1,203	0.65	6,351	0.52
15. Food employees	7,484	4.05	41,786	3.66
16. Freight handlers	721	0.39	7,020	0.57
17. Glass workers	955	0.52	6,482	0.53
18. Jewelers	1,165	0.63	4,325	0.35
19. Laborers, not specified	17,685	9.56	122,813	10.04
20. Leather workers	4,311	2.33	28,085	2.30
21. Liquor manufacturing employees	14,324	7.71	111,132	9.09
22. Machinists	16,025	8.66	93,265	7.62
23. Miners	7,067	3.82	64,211	5.25
24. Miscellaneous (all other occupations)	9,258	5.00	57,708	4.72
25. Molders	2,841	1.54	16,582	1.36
26. Other building construction employees	588	0.32	3,957	0.32
27. Other manufacturing employees	4,164	2.25	22,661	1.85
28. Other metal workers	6,907	3.73	39,266	3.21
29. Painters	4,389	2.37	28,939	2.37
30. Plasterers	558	0.30	3,749	0.31
31. Plumbers	1,448	0.78	7,819	0.64
32. Printers and engravers	3,391	1.83	20,582	1.68
33. Professional	1,189	0.64	3,510	0.29
34. Railway employees	691	0.37	5,249	0.43
35. Sheet metal workers	2,343	1.27	13,813	1.13
36. Slaughtering and meat packing employees	5,716	3.09	38,309	3.13
37. Stone and granite workers	1,169	0.63	8,785	0.72
38. Tanners	1,466	0.79	10,655	0.87
39. Textile manufacturing employees	7,287	3.91	35,315	2.89
40. Tobacco and cigar workers	8,897	4.81	71,233	5.82
41. Trade and clerical	5,587	3.02	25,951	2.12
42. Woodworkers	6,092	3.29	41,197	3.39
Total	185,018	100.00	1,223,321	100.00

A correct measurement of the disability responsibility of each occupation is made by comparing the strength of the occupation with the disability charged up to it. It demonstrates that some industries carry an appreciable portion of the disabilities of the other groups.

JEWISH HEALTH WORK

BY H. J. MOSS, M.D., SUPERINTENDENT, HEBREW HOSPITAL, BALTIMORE, MD.; CHAIRMAN, HEALTH SECTION, NATIONAL CONFERENCE OF JEWISH CHARITIES*

THE new day is at hand when the welfare of the masses of the people is becoming more the concern of the whole people, and the Government of our country is already devoting its best thought and attention to the questions of health, health conservation, and disease prevention, to the end that we may have a strong, vigorous, robust, and healthy people of whom these United States may be proud, and thus retain the magnificent place our soldiers won for us on the battlefield.

In a report to Congress on the state of the public health with recommendations indorsed by President Wilson, wide extension of the United States Public Health Service is urged, an extension in which the Federal Government will assume close supervision of state and municipal health activities. The report, coming through the Department of the Treasury, to which the Public Health Service is attached, called attention to the deplorable situation revealed by the Army draft. The completed Army draft records show that more than 34 per cent of all the draft registrants were rejected by examining boards on account of physical defects and diseases.

Disease Due to Neglect

To meet this terrific drain on the man resources of the country, a war-time public health program was formulated. Now, in the interests of the nation as well as of individuals, with slight modifications, it is proposed to make this war-time program a permanent peace-time governmental policy.

A part of the program says:

"Recruiting statistics have revealed the terrible conditions as regards the physical health of the nation. This is not due to poverty but neglect. The health of the people must be the special concern of the state. To help meet the serious

MAKING COMMUNITIES SAFE FOR THE HEALTH OF CITIZENS

The Jewish Health Program contemplates a survey and study of the diseases common to the peoples of Jewish communities.

By learning the mortality and morbidity rates in Jewish communities, efforts may be directed toward the reduction and elimination of the more prevalent diseases and their causative factors.

The aims and methods of the Jewish Health Bureau of Baltimore are here outlined; in general these aims embrace those which it is proposed shall be adopted as a national Jewish Health Program.

tigations, 20; health education, 10. Calling attention to a situation set forth as nothing short of appalling, the report, after stating that more than 34 per cent had to be rejected, says:

Rural and Industrial Hygiene

"For patent economic reasons the need of conserving life and health is all the more urgent in order to permit recovery from war losses in the shortest possible time, and to render even reasonably safe the development of new agricultural and industrial resources. It is essential at this time that the Federal Government assume leadership in stimulating states, counties, and municipalities in improving their sanitary conditions to the best interests of communities. In order that thousands of lives may be saved, it is proposed for the Federal Government to prosecute in part the following program, including industrial and rural hygiene. The former would include:

"1. Continuing and extending health surveys in industry with a view to determining precisely the nature of the health hazards and the measures needed to correct them.

"2. Securing adequate reports of the prevalence of disease among employees and the sanitary conditions in industrial establishments and communities.

"3. National development of adequate systems of medical and surgical supervision of employees in places of employment.

"4. The establishment of the Public Health Service, in cooperation with the De-

*Read before the National Conference of Jewish Charities, Atlantic City, N. J., May, 1919.

partment of Labor, of minimum standards of industrial hygiene and the prevention of diseases."

Health Needs Are Universal

Not only has the attention of our own country been concentrated on health, but the whole world is awakened to the realization that every effort must now be made to ameliorate those conditions responsible for ill health and disease. In other words, the world must be made safe to live in, not only from a military point but from the health point of view. This is manifest from the announcement made by the American Red Cross Society early in May that fifteen of America's leading health specialists, acting with distinguished physicians and scientists of England, France, Japan, and Italy, at the Interallied Red Cross Conference at Cannes, France, had affixed their names to a resolution telling of the purpose "to spread the light of science and the warmth of human sympathy into every corner of the world."

The text of the resolution adopted is as follows:

"We are assembled at the invitation of the Committee of the Red Cross Societies to assist in the task for which the Committee was constituted, namely, to formulate and propose to the Red Cross Societies of the world an extended program of Red Cross activities in the interest of humanity. In addressing ourselves to this task, we desire to express our belief that while every measure should be taken to repair the ravages of war and prevent all wars, it is no less important that the world should address itself to the prevention and amelioration of those ever present tragedies of unnecessary sickness and death which occur in the homes of all peoples.

"This world-wide prevalence of disease and suffering is in considerable measure due to widespread ignorance and lack of application of well established facts and methods capable either of largely restricting disease or of preventing it altogether. It is clear that it is most important to the future progress and security of civilization that intelligent steps be taken to instruct the peoples of the world in the observance of those principles and practices which will contribute to their health and welfare.

Educated World-Opinion

"In the accomplishment of these great aims it is of supreme consequence that the results of the studies and researches of science should be made available to the whole world: that high standards of practice and proficiency in the prevention of disease and preservation of health should be promoted and supported by an intelligent and

educated public opinion, and that effective measures should be taken in every country to secure the utmost cooperation between the people at large, and all well directed agencies engaged in the promotion of health.

"We have carefully considered the general purposes of the Committee of Red Cross Societies whereby it is proposed to utilize a central organization which shall stimulate and coordinate the voluntary efforts of the people of the world through their respective Red Cross societies which shall assist in promoting the development of sound measures for public health and sanitation, the welfare of children and mothers, the education and training of nurses, the control of tuberculosis, venereal diseases, malaria, and other infectious and preventable diseases; and which shall endeavor to spread the light of human science and the warmth of human sympathy in every corner of the world, and shall invoke in behalf of humanity not alone the results of science but the daily efforts of men and women of every country, every religion, and every race.

"We believe that the plans now being developed should at the earliest practicable moment be put into effect and placed at the disposal of the world. In no way can this be done so effectively as through the Red Cross, hitherto largely representing a movement for amelioration of conditions due to war, but now surrounded by a new sentiment, and the wide support and confidence of the peoples of the world, and equipping it to promote effective measures for human betterment under conditions of peace. We are confident that this movement, assured as it is at the outset of the moral support of civilization, has in it great possibilities of adding immeasurably to the happiness and welfare of the world."

Jews Organize for Health

We, as Jews who have always been a leading factor in every progressive movement, must now also divert our attentions to the question of health as it relates to our co-religionists, irrespective of the plans of the governments, states, or municipalities. We have in the past recognized the need of Jewish hospitals, Jewish tuberculosis sanatoria, Jewish convalescent homes, Jewish homes for incurables, etc. These institutions have always been recognized as the most efficient in their respective communities. Why not now Jewish health organizations? Why not concentrate upon the causes of ill health of our people? Are we not better qualified to understand the needs of our people than is the government?

A recent investigation into the causes of poverty in 8,500 cases undertaken on a scale not

hitherto attempted in any city, by the Bureau of State and Municipal Research of Baltimore City, revealed the astounding fact that 50 per cent of the cases of poverty were directly traceable to ill health. Does this not suggest that our whole treatment of poverty has been erroneous? Have we not been treating symptoms rather than the disease itself? Is not the time mature for radical changes in the administration of our charitable and philanthropic agencies?

Sends Questionnaire to 110 Cities

A questionnaire mailed by the writer to Jewish communities of 110 cities, disclosed the following interesting facts which emphasize the inadequacy and unpreparedness of most of our Jewish communities throughout the country for meeting their needs on the matter of health.

There are but fourteen Jewish hospitals, five tuberculosis sanatoria, four homes for incurables, and four convalescent homes. Not a single community is in a position to know how many Jewish incurables are in their midst. In but a few of the largest cities medical social service is practiced. Not a single community knows the mortality or morbidity rates of the Jewish population. Not a single community knows which are the prevailing diseases, or those causing death among our people. Not a single community is endeavoring to take steps for the eradication and prevention of tuberculosis, the work being done by the local tuberculosis organizations, which at best is none too good. In only seven cities are attempts made in the way of health education. Four cities have societies of mental hygiene and prophylaxis. Twelve cities have organizations for prevention of infant mortality, five have undertaken prenatal work, and seven have societies for prevention of venereal diseases.

Realizing our shortcomings in Baltimore, and feeling the need of a greater sphere of health work not undertaken even by the municipal health organizations, we have recently called into being the Jewish Health Bureau, whose purposes are to study, investigate, and inquire into the conditions affecting the health of the Jews in our city, and to take action from time to time as may tend to ameliorate these conditions. The Bureau consists of two representatives from every Jewish Institution engaged in health work of some form.

Jewish Health Aims in Baltimore

For the achievement of the objects and purposes of the Bureau, the following program is contemplated:

1. (a) The initiation of a survey and a study of the diseases common to our people.

(b) The determination of mortality rates and statistics of the various diseases; after such determination, the taking of such steps as may be necessary to bring about, if possible, a reduction or entire elimination of those causes by instituting proper methods of prevention.

2. (a) The study of the prevalence of tuberculosis in our community. (b) The ascertaining of the number of cases under treatment in sanatoriums, hospitals, and homes. (c) A systematic examination of all members of families wherein tuberculosis has developed; a determination of the probable causes of the disease in these families and, if possible, to remove such causes. (d)) A systematic following up of all arrested or so-called cured cases.

3. (a) The study of the existing chronic incurables among our people. (b) The ascertaining of the numbers confined in hospitals and homes. (c) The determination which of the disabled are in a physical condition to support themselves wholly, partly, or not at all.

4. The provision of ways and means to care for convalescent patients or the over-worked.

5. The inauguration of a health educational campaign with systematic lectures on general and personal hygiene, and prevention of disease.

An Intensive Health Campaign

The Bureau took up the matter of health education as the first important part of the program, feeling that the people were never in a more receptive state of mind on the question of health than they are today. A special committee with the writer as chairman was appointed to draft a program for a health week during which were to be emphasized the most vital subjects relating to public health. A publicity committee was also appointed to stir up our community and urge everyone to attend the various sessions. All of the Baltimore newspapers cooperated in the most admirable manner. The Surgeon General of the United States Public Health Service, the state and city health departments, the Maryland Society for the Study and Prevention of Tuberculosis, the Johns Hopkins School of Hygiene, the Babies' Milk Fund Association, the Visiting Nurses' Association, all cooperated to make the campaign a success.

The campaign opened on Sunday evening, April 6, at the Victoria Theater. The hall was filled to its utmost capacity and hundreds were turned

away. Addresses were made by a representative of the Surgeon General of the United States Public Health Service, the health commissioner of Baltimore, and other prominent physicians and sanitarians. Thereafter, all meetings were held at the Jewish Educational Alliance, the headquarters of the campaign.

The features of the work were: (1) free dental examination every day from 1 to 5 p. m.; (2) nightly food exhibits and demonstrations arranged by Professor McCullum of the Johns Hopkins School of Hygiene; (3) nightly tuberculosis exhibits; (4) nightly home nursing classes; (5) daily demonstrations on care of babies by the Babies' Milk Fund Association; and (6) the specially interesting presentation of motion pictures carefully selected and having a direct bearing on the subject discussed, which did a great deal to emphasize the points we wished to convey.

Monday evening was devoted to personal hygiene, viz.: the value of bathing; clean clothing; the value of sleep; rest, recreation, and vacation. Tuesday was given over entirely to foods and nutrition, with proper exhibits and demonstrations by dietitians and food experts.

Hygiene of the mouth, ear, nose, and throat, were discussed on Wednesday. Thursday was devoted to the care of babies and children. Also there were two sections, one for men and one for women, on sex hygiene. Saturday was taken up with the discussion of chronic diseases, tuberculosis included, and their prevention, and also con-

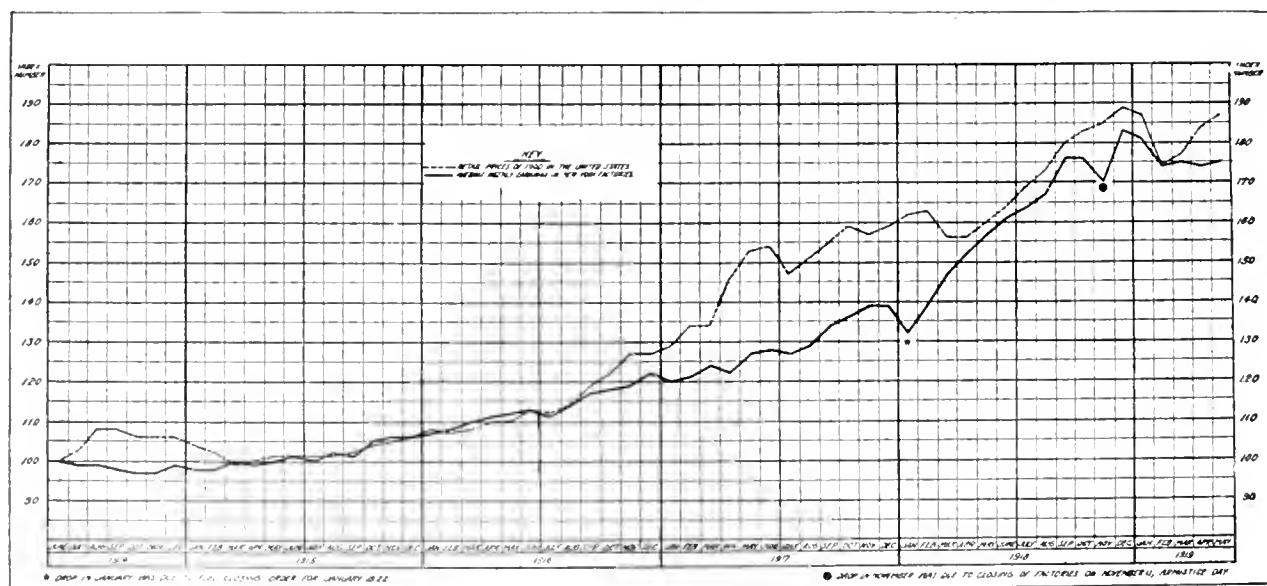
tagious diseases and their prevention. Sunday, the last day of the campaign, emphasized general sanitation and hygiene, such as fighting flies and vermin, the danger of overcrowding, the importance of ventilation, and general cleanliness.

The success of the campaign stimulated our Health Bureau to greater activities. We hope to continue our program of health education. It is our intention to have at least one big meeting a month in a very large hall or theater at which time we will take up some important health subject.

We also expect to begin the other sections of our working program and hope to report similar progress in time. We believe we are working along proper lines, realizing, as everyone should, that to prevent disease is to prevent poverty and misery. We trust that other communities will profit by our experience and concentrate their efforts in the same direction.

As chairman of the Committee on Health of the National Conference of Jewish Charities, it became my duty to outline a health program dealing with all important questions relating to health. Inasmuch as this is the first attempt of the Conference to devote an entire day for the purpose, the Association is to be congratulated on having been able to obtain participants who are experts in their respective lines, able to present the different phases of the subject in an authoritative manner which cannot fail to be of benefit to each individual social worker and to promote a general program of Jewish health work.

COMPARISON OF COURSE OF AVERAGE WEEKLY EARNINGS IN NEW YORK STATE FACTORIES, WITH COURSE OF RETAIL FOOD PRICES IN THE UNITED STATES. COMPILED BY THE NEW YORK STATE INDUSTRIAL COMMISSION AND PUBLISHED IN THE LABOR MARKET BULLETIN.



After a sharp divergence in 1914 the cost of living and earnings increased together until the late summer of 1916, when the increase in the cost of living diverged upward and was not approached by earnings until February, 1919. Since then there has been another sharp divergence to the disadvantage of the worker.

A STUDY OF TRAUMATIC HERNIA, SO-CALLED, AMONG RAILWAY EMPLOYEES

By C. W. HOPKINS, M.D., F.A.C.S., CHIEF SURGEON, CHICAGO & NORTHWESTERN RAILWAY, CHICAGO, ILL.

IN the discussion of traumatic hernia, the inguinal type being the most common, it is at once assumed that indirect inguinal hernia is referred to when the subject is presented. This is the type of hernia which is giving more and more concern because of the increasing number of claims of injury presented by a certain class.

Perhaps at no time in the history of railway surgery have so many

claims been made on account of alleged traumatic hernia as at present, and there is seldom a time when a railway company is not taking care of a score of so-called traumatic hernia cases among their employees and patrons. Willing as the companies are to do justice to these cases, the interesting standpoint to them lies in the prevention of fraud and of abuse of their good will.

It is not intended to consider any of the conditions which involve a loss, destruction, or solution of continuity of the tissues of the abdominal wall, where there is *prima facie* evidence of a traumatic lesion, but to limit this discussion to the consideration of the most common hernia, the oblique inguinal. The claim that the oblique inguinal hernia is the most common is partly based upon the observations of Professor Paul Berger, who in 13,483 hernias found 12,283 of the oblique inguinal type.

Traumatic Hernia Rarely Encountered

Reference to some of the older writers, as well as to many of the writers of the present day, shows that they consider true traumatic hernia one of the rarest conditions encountered in emergency surgery. Golebiewski has written a book on the workings of an association of trades, in which are made exhaustive studies of all of the various injuries, and the percentage of disability which such injuries or deformities occasioned estimated. In this book the subject of hernia is very thoroughly discussed, and he considers

Hernia results from a developmental defect and accidental injury can be only a secondary cause.

So many unjust claims are allowed under present conditions that the law should take cognizance of the fact, and definitely settle the matter.

The only protection possible at the present time is the routine examination of all employees for record of their physical condition at time of employment.

If rational interpretation in such cases is not made, workmen with this inherent weakness will have to be excluded from certain industries.

traumatic hernia to be such a rare condition that he recites in detail only two cases conceded by him as being primarily or indirectly traumatic hernia.

The subject of hernia is classified in this way: hernia occurs at a defective point; a trauma is very rarely the cause of this weakness; on the contrary, it is practically always congenital in which instance the trauma, to use the language of the author

mentioned, "is the means of the discovery rather than the cause of the hernia."

A shade of difference is made in the forms of traumatic hernia, distinguished as "True Traumatic, and Accidental." In the former, the blow or strain has been such as to force the hernia through the peritoneal covering, and in the latter the peritoneum is carried ahead; but both must remain under the general appellation of traumatic hernia, as they only represent a degree in trauma.

Personally, the more we see of these cases of so-called traumatic hernia, with the alleged ease of their acquirement, and with the absence of the symptoms that should have presented at the time the hernia is said to have been received, the more firm is our conviction that the actual occurrence of true traumatic hernia, in the average individual who comes before us, is rarely, if ever, seen.

Alleged Causes Inadequate

Men of various occupations, in railroad work in particular, present themselves three or four days, a week, or even two weeks or more, after an alleged injury, claiming that the hernia was acquired at the time of a "strain," a mis-step, a squeezing, an over-lifting, a fall, or a blow. They state that the hernia was not noticed at the time—not until some days later, or perhaps while in the bath. They may further state that no pain was felt at the time of the supposed accident, nor was there any shock, vomiting, or disability; in fact,

there was no loss of time from the date of the alleged acquiring of the hernia to the time they report to the physician. They also claim that they never noticed this swelling before, and are quite certain that the cause they allege must be responsible for it.

In the majority of cases examination reveals that there is a well developed hernia, sometimes even with old marks of a truss, and many times a scrotal hernia of large size. During the examination no soreness in the part, no ecchymosis, no effusion into the tissues are discovered nor is there the least tenderness upon palpation or rigid examination. The patient himself will assist in reducing the hernia in the most expert and experienced manner. It is easily reduced without pain or discomfort to the patient and readily returns upon standing. A large majority of cases show a large, patent ring on the opposite side and close examination of that side will disclose an impulse upon the examining finger when the individual coughs.

Even when a case is examined but a few hours or days after an alleged injury, and the vague history and lack of acute symptoms indicate that the real cause of the condition is an inherent one, it is useless to try to convince such patients that every man who develops this condition was born with potential hernia. Undertake to convince them that the condition is an old one, as they are well aware, and they will leave the office and go to their family physician, who will often agree with them in every detail, and back them up even upon the witness stand, testifying that the alleged hernia could have occurred and actually did occur as the patient claims, regardless of the absence of any accompanying symptoms that would necessarily have presented in the presence of true traumatic hernia.

Not Incident to Muscular Strain

No doubt there are cases of true traumatic hernia, but in railroad surgery in particular, which calls for the care of patients who have received severe falls or squeezings through the abdomen and pelvis, causing most extreme intra-abdominal pressure, sufficient to cause rupture of the bladder, kidney, liver, intestines, or to crush the pelvis, why is it that inguinal hernia is never found as a concomitant unless the injuries were probably of sufficient severity to cause death?

Taking into consideration the fact that there are thousands of men of all ages who are engaged every day in occupations requiring heavy lifting, hard straining, or are engaged in acrobatic work, which frequently calls for the most strenuous

effort and muscular action, particularly of the abdominal muscles, and who sustain severe falls, if extraordinary muscular effort or great intra-abdominal pressure are the chief causes of hernia, why are not all of these men victims of hernia? Nevertheless, the average individual expects the surgeon to believe any statement he wishes to make, and will try to convince him that a well developed hernia, with the necessary sac of peritoneum, reaching well down into the scrotum, occurred but a few hours or days before, without any marked symptoms, and with no disability on his part up to the time he comes for examination.

One interesting phase of this claim of traumatic hernia is that in such men as engineers, conductors, firemen, brakemen, crossing flagmen, section foremen, special police, and the dining car employees of a railroad, who have passed an examination before entering the service, the claim of traumatic hernia amounts to less than 1 per cent; on the other hand, the foreigner, such as the Greek, the Italian, the Pole, and other men who do not have the preliminary examination before being admitted to the service, comprise 99 per cent of the cases of alleged traumatic hernia. We feel sure that the 1 per cent of the men who have been examined for service who do appear with so-called traumatic hernia, had enlarged rings with a preformed sac that could not be felt or demonstrated at the time of the examination, or they would not have developed a subsequent hernia.

Hernia Incidence in Foreigners

As to the frequency of hernia among foreigners, it is significant that several years ago, when the law went into effect requiring monthly examination for occupational diseases of the men of a certain plant who were employed in the paint shops and other departments where chemicals were used, the first examination of 186 men revealed the fact that 48 of them had either single or double hernia of long standing. All of these men were foreigners and entered the service without physical examination. If during their term of employment before this examination, they had sustained any kind of an injury, they probably would have claimed that the hernia was received at that time.

It is a known fact that a prominent surgeon in Chicago, who does the medical and surgical work for a Greek society, performs more operations for the cure of hernia in one particular hospital than the rest of the entire staff combined. Whether the people from southern Europe inherit this weakness, or whether it is due to their habitual wearing of belts is a matter of discussion.

among some of our most prominent writers on the subject. In our own experience in railroad surgery, the files disclose that the vast majority of operations performed for hernia are among this class of European laborers, and my own observations lead me to believe that the condition is a congenital or inherited weakness of the parts, precipitated by pre-senility or disease which is so commonly found among them.

Structural Defects and Hernia

When the parts are exposed at operation, these cases usually present very thin oblique muscles with a very thin transversalis fascia, the fibers very closely held together, with an absence of the conjoined tendon and normal external ring, and a mere oblong or triangular slit instead of the normal ring. This makes it necessary to handle all of these tissues very carefully to get even a fair amount of tissue with which to remedy the congenital defect sufficiently to prevent recurrence. We do not find induration, effusion into the tissues, or rupture of peritoneum; but a smooth, tough, elongated culdesac, snugly lying along the cord, closely covered by fascia. In many instances a certain amount of omentum or bowel lies within the sac and may be adherent to it throughout its entire length.

There are cases which present a well defined double sac, called the pantaloons sac, and occasionally three sacs, coming off from the base at the internal ring. Many of these cases operated upon forty-eight hours after the alleged injury, will disclose the above conditions, and in spite of the claim of recent injury, there is no extravasation of blood or serum, nor the slightest laceration of tissue. There is, however, a thick, smooth, tough, adherent sac which must have existed from birth and has depended upon a series of repeated blows or impulses by the abdominal contents in forcing their way into the canal, carrying the preformed sac ahead of them, and which was the predisposing cause for some unusual force to bring them down sufficiently to make the hernia apparent and to cause more or less discomfort in breaking through adhesions a little beyond the long existing, slowly acquired, beaten path.

However, in the state of chaos which exists on account of the various opinions and contentions regarding traumatic hernia it has been considered best, by most employers, to have these cases operated upon as the best means of settling a difficult matter. There are numbers of would-be medical experts who will take the stand and swear to the possibility of a large hernia being acquired in the manner and at the time it is alleged by the patient. It also seems to be a settled fact that

the claimant will be given a verdict by the average jury, regardless of the merits of the case, or the facts presented by the defense, and as the matter now stands to contest such cases would entail much fighting and undesirable publicity.

Within the last few months the author has had three patients in particular with alleged traumatic hernia, supposed to have been received but a few weeks prior to examination and operation, and who claimed to have received the hernia while lifting a can of milk, while using a crow bar, or while lifting a hand car. None of these men had taken the preliminary examination for the service. Upon operation no external or internal ring or any well defined sac could be found but there was a large, general bulging of the whole abdominal wall on that side which showed that the entire canal had been obliterated by the general weakness of the entire abdominal structure, forming one large opening, and allowing the formation of a large peritoneal sac or pouch, the contents of which had to be reduced and the sac or pouch ligated in sections, and the entire abdominal wall in that locality rebuilt in order to obtain a satisfactory result. These cases all claimed to have been injured but a short time previously, but there was not the least sign of the recent injury which necessarily would have been present if the condition had been created at the time alleged.

Company Buys a Hernia

In connection with the cases just mentioned it may be permitted to relate an incident which occurred recently when about to operate upon a Greek, sent to Chicago to be operated upon for a hernia which was supposed to have occurred about one week previously. When the case was reported by the local surgeon, we wrote back and stated that from the facts in the case it was certainly an old hernia, and directed that he be sent to us for examination and operation. When about to operate upon the case, we informed him that a hernia existed on both sides and that we would correct them both at the same time. Although there was a hernia fully as large on the other side, he strenuously objected to an operation on that side, and wished operation on the left side only. When the sac was exposed, it was found to be very large, tough, and, as mentioned by C. H. Mayo, made up of heavy fibrous bands, which is a positive proof of a sac of long standing. After the operation was finished, and while he was coming out of the anesthetic, his straining and coughing produced a condition on the right side which was equally as large as the one just corrected, and upon which he would not permit an operation. This man had been in the service

but a short time, and as he is on record as having the right inguinal hernia which he would not permit us to correct, he will in all likelihood soon appear in a hospital of another railroad to be operated upon for an old hernia which he has compelled them to buy.

Proof of Accident Necessary

It has been decided by the surgical staff of some of the European armies, that unless a man had witnesses to his accident, had presented definite and immediately disabling symptoms, the claim of traumatic hernia will not be recognized or allowed. On this side, however, there are many surgeons who still claim that a man can receive traumatic hernia, yet present no such symptoms, as shock, vomiting, pain, etc., and that after the alleged receiving of the hernia he can work continuously up to the time he presents himself for examination or operation. They will give him a certificate to his employer to that effect, and such claims are being allowed by the courts and the compensation boards every day.

Consequently, the larger corporations are beginning to examine every man already in their employ to obtain a record as to his physical condition, and are demanding that every man who applies for employment be examined before being put to work, so that they can protect themselves against this claim for traumatic hernia which is being made against them, when in many instances, there is not the slightest history of any injury to the employee, or even a record of any accident. The matter must be definitely settled one way or another, sooner or later. No corporation, combination of corporations, or insurance companies will be able to do it; but it will have to be settled by the law, after it has been threshed out sufficiently to convince the law makers of the real conditions and facts. If this is not done it will ultimately work a hardship upon the very man that the law is seeking to protect, as the average workingman or laborer, who has hernia, will be either eliminated or kept out of employment. This same man, who is usually the laborer, rarely has sufficient money ahead to pay his expenses at a hospital and to have a competent surgeon for an operation with the only result that they are bound to overload our public institutions, increasing the burden upon the taxpay-ers in order to correct an old condition so that they can obtain employment and become self-sus-taining.

The History of a Hernia

We are all familiar with the embryonic forma-tion and the placing of the testicle in its proper position, and how Nature is supposed to close the

ring about the time of birth, and how she sometimes fails, as is proved by the development of inguinal hernia in children only a few weeks or months old. If this is fully understood, it cer-tainly is not difficult to see why a man develops hernia, and that every man who does develop hernia in later life must have been born with potential hernia, only waiting for the proper time and conditions to make its appearance, and for which the employer or insurance company would be expected to pay. They should not pay for inguinal hernia any more than they should pay for protruding hemorrhoids, which we know take time and certain conditions to make their debut into the outside world.

Many surgeons have gone so far as invariably to operate upon both sides in case of hernia, even when nothing more than a large patulous ring is to be found on the other side, and, without excep-tion, the results justify the procedure. Since January 1, 1914, if the patient could understand English and the conditions could be fully explained to him, I have operated upon both sides. Even if the opposite side presents no symptoms other than a patulous ring, there is found a well marked, preformed sac, and in many cases the omentum or bowel is strongly adherent through-out the entire length of the sac, waiting for some unusual impulse to bring it down—an occurrence which would no doubt be considered traumatic hernia.

In cases of foreigners who could not speak English, it is our practice merely to operate on the one side, for such cases would consider the employer responsible for a double hernia if both sides had been operated, even when no complaint had been made of the other side.

One Basis of Compensation

We have taken the liberty of incorporating in this paper the ruling of the Nevada Industrial Commission, date September 26, 1913, on the subject of hernia:

"Medical science teaches and has taught for the past twenty years, that which is now accepted as a medical and scientific fact, cor-roborated as such by the foremost surgeons and anatomists of the world, that is, that hernia (or so-called rupture) is a disease ordinarily developing gradually, and which is very rarely the result of an accident.

"With the object of treating the subject of hernia justly to both employer and em-ployee, and in accordance with medical and scientific teachings and facts, the Commis-sion rules as follows:

"Rule 1. Real traumatic hernia is an in-

jury to the abdominal (belly) wall of sufficient severity to puncture or tear asunder said wall, and permit the exposure or protruding of the abdominal viscera or some part thereof. Such an injury will be compensated as a temporary, total disability, and as a partial, permanent disability depending upon the lessening of the injured individual's earning capacity.

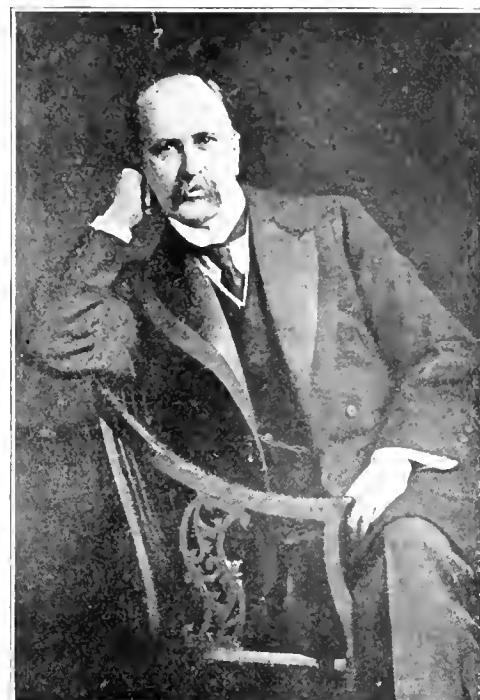
"Rule 2. All other hernias, whenever occurring or discovered, and whatsoever the cause, except as under Rule 1, are considered to be diseases causing incapacitating conditions or permanent, partial disability. But the permanent partial disability and the causes of such are considered to be shown by medical facts to have either existed from birth; to have been years in formation and duration, or both, and are not compensatory except as provided under Rule 3.

"Rule 3. All cases, coming under Rule 2, in which it can be conclusively proven: (1) that the immediate cause which calls attention to the presence of the hernia, was a sudden effort or severe strain or blow received while in the course of employment; (2) that the descent of the hernia occurred immediately following the cause; (3) that the cause was accompanied, or immediately followed, by severe pain in the hernial region; (4) that the above facts were of such severity that the same were noticed by the claimant and communicated immediately to one or more persons are considered to be aggravations of previous ailments, or diseases, and will be compensated as such for time and loss, and to a limited extent only, depending upon the nature of the proofs submitted, and the result of local medical examination."

Put Problem on Sane Basis

The foregoing is stated to following rulings in Ohio and Washington. The matter is a most important one as under the English law there has been the greatest difficulty over the subject; for this reason, and on account of the increasing frequency of these claims, especially in laborers from European countries, we are keeping a record of all hernia cases which record will include among other things, nationality, age, occupation, alleged cause of injury, state of health, and condition of rings on the opposite side. From this it is hoped to obtain statistics which will prove to be of value or at least of some assistance in helping to place this difficult problem upon a sane basis and to bring about sensible legislation where the employer and employee will both obtain a fair

deal and wipe out the condition of injustice. The present state of affairs certainly places a premium upon malingering and dishonesty in a certain class.



SIR WILLIAM OSLER—1902

SIR WILLIAM OSLER—A REVIEW AND AN ANNIVERSARY TRIBUTE

The month of July, 1919, marked the seventieth anniversary of the birth of Sir William Osler, and the *Bulletin of the Johns Hopkins Hospital* commemorates the occasion by devoting a full issue to recollections of Osler in Baltimore. There is no doubt that Osler stands out as the most prominent figure in clinical medicine during the years he occupied the chair at Johns Hopkins. As physician, teacher, investigator, pathologist, student, public citizen, and literateur, Osler's position was, indeed, unique.

Clinical Instruction at Bedside

In these days when the orderly arrangement of clinical facts and deductions has been taken for granted, and the mind of the investigator is turned to the fields of biochemistry and physics for help in the solution of medical problems, it may be somewhat difficult to appreciate Osler's tremendous contributions to medicine in the latter part of the nineteenth century. Personally an investigator, primarily in the fields of the natural sciences and then in pathology, always viewing his problem from the standpoint of the patient, Osler brought the fruit of his investigations into direct contact and association with the patient.

Likewise, as a teacher he brought to this country the lessons learned in the clinics of England and the continent and made the medical wards at Johns Hopkins the first spot in this country where the newer medicine was taught. As Thomas says, he put the students into the wards but he did not leave them there, he stayed with them and gave them clinical instruction on a uni-

versity basis. As the organizer and director of the medical clinic in Baltimore, and as teacher, Barker and Thayer speak of Osler in terms which to be appreciated must be quoted.

Barker believes that Osler's arrangement of the hospital medical staff into two grades, as senior residents and the junior interns, was responsible in great part for the success of Osler's new ideas. This arrangement permitted the introduction of more extensive and systematic courses of instruction in the practical technical methods of gathering data regarding disturbances of structure and function in the sick than had before been customary. Barker also thinks that the use of the fourth year students as clinical clerks in the wards of the hospital was one factor in the success of the Hopkins Hospital as a teaching institution. The comment is apparent that even today universities, attempting to give their medical students the best of instruction, seek often fruitlessly to emulate the example Osler set in the early nineties.

The Personality of the Teacher

But all of these formal objects are only part of Osler's record as a teacher. Students in the Hopkins Medical School during Osler's régime are much more apt to associate with the professor of medicine the powerful personal magnetism and the tremendous influence of Osler's personality on the young student. Thayer, in particular, has brought out some of the dicta and modes of expression which Osler used to hammer thoughts into the minds of his students. As a teacher, all felt that he was likewise a student and a worker with the young men he was teaching. His well known and oft repeated remarks about the causes of aneurysm stick forever in the minds of those who have heard him refer to Bacchus, Mars, Venus, and Vulcan. And many a young fellow was inspired to do better work because of the hearty clap of Osler's newspaper on his back as he walked down the street.

His Knowledge of Foreign Literature

Osler never forgot information given him by his younger associates, whether from physician or student in his wards; and if subsequently an article were to be published, the man who mentioned in the street-car a case of interest would very likely find his name printed in the article as having referred, no matter how many years before, to this particular case. Many a man leaving Osler's clinic has uttered thanks for his insistence, even in student days, of a knowledge of the medical literature of other countries. Teachers today might well follow Osler in devoting a part of each big clinic to a student review of an important article from the French, or German, or Italian literature. Although this tendency of Osler's clinic was, perhaps, definitely associated with his sense of literary values, his students appreciated in later years the purely scientific necessity of a knowledge of foreign literature in investigative work.

A Master of Morbid Anatomy

MacCallum makes a statement which should be quoted in full, "The statement may be safely ventured that no clinician in English speaking countries has had at his command such a wide and detailed knowledge of morbid anatomy as Osler. There may be different opinions as to the reasons for his greatness as a teacher, as a man among men and in other ways, but hardly more than one opinion as to the foundation of his greatness as a clinician."

Some of the collected pathological data of Osler, which unquestionably formed the ground-work of his text-

book of clinical medicine, are still used in the teaching of pathological anatomy. In fact, it can almost be said that Osler finished more pathological clinical connections than any other man. Although today we are turning for the explanation of the disease processes to the allied sciences of biochemistry, physiology, and physics, it is doubtful whether such steps could have been made without the tremendous amount of collected statistics of Osler and men of his type.

The Practice of Psychotherapy

Osler's relations to his patients have been spoken of by McCrae and can be best summarized in the statement that although Osler did not talk about psychotherapy he continually practised it. The writer of this review has seen Osler walk into the room of a patient with pneumonia in a state of *coma-vigil*, who for a week had been unable to recognize members of his own family, and who in response perhaps to Osler's cheery, "How do you do, Mr. X?" or, perhaps, in response to the waves of magnetism shooting from his personality, looked up, opened his eyes, and said, "How do you do, Dr. Osler?" The ward was always a cheerier place after Osler's visit, and one could feel the spirit, if not the voices, of the patients singing,

"God's in his heaven . . .
"All's right with the world!"

Like Louis Pasteur, Osler was interested in world welfare. As a citizen of Baltimore he was an earnest fighter for civic improvement, especially along the lines of public health. His interest in tuberculosis was as much sociological as medical. Perhaps more than any single man his influence was felt in the development of the state medical society and in the formation of a library. His readings were wide, his literary productions abounded in quotations from the classics. The style of his writings was as pleasing to the eye as his clinical discourses were to the ear.

The aptness of his expressions may be exemplified by recalling "The Master Word in Medicine." In this discourse to young doctors he speaks, as he has done frequently, of the necessity of a single hearted devotion to one's mistress in medicine, and advises the young medical man to put his "affections in cold storage." Yet this did not prevent him from teasing the sick medical student when walking into his room if he saw a pile of letters in a feminine handwriting on the young man's table.

Organize Medical Service

Through every single article in the *Bulletin* runs one thread of sentiment and thought; whether Osler is being discussed as pathologist, as teacher, as investigator, the writer of the article writes about him as of a deep and whole-souled friend. This ability to inspire friendship is the thing that everyone who came in contact with Osler felt most powerfully. The medical student on the street-car, matching coins with the chief to see who would pay, knew that Osler was his friend; and the country doctor, coming in with an undiagnosed disease, knew that Osler was his friend. He was square to his colleagues within and without his own faculty. He gave his young men every opportunity of self-expression and development, and he never took as his own the work done in his clinic, even at his suggestion by his younger associates. No wonder everyone loves Osler.

Success is for all who are willing to pay the price of admission, but there are no complimentary tickets.—A. Pike.

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

THE MEDICAL PROFESSION AND THE NEXT OUTBREAK OF INFLUENZA

THE members of the medical profession as individuals are in position to make more friends among the people at large than members of any other profession. They enjoy a respect generally accorded no other similar group of men. At some time or other almost every individual, either for himself or for a member of his family, has reason to put all of his faith and hope for life in the medical or surgical skill of some physician. Contacts are made and friendships formed which leave an indelible impress.

The same feeling of dependency comes to the community at large in times of serious epidemic. Then the community looks to the profession to save it from preventable illness and needless loss of life. This was the situation of the world at large during the recent epidemic of influenza, when the people stood aghast at the inroads of disease.

The massing of millions of men in army camps, and the marvelous control of some of the communicable diseases only serve to emphasize the helplessness of the profession in meeting the ravages of this world-wide scourge, influenza.

The conditions of the past year have produced an open state of mind in the public, looking towards definite control of public health. Another point of progress has been the recognition on the part of financial and business interests of the economic value of good health. The task of meeting demands for war production on an unprecedented scale put the workers to an exhaustive test of their physical fitness. Absence from work on account of illness loomed large in the failures on the part of manufacturing interests to meet their promised deliveries of munitions of war.

Occupational diseases, fatigue, the effect of overtime, and bad housing received due recognition as factors in schemes of production. Scientific studies along these lines have been stimulated twenty-five years in advance of the ordinary course of industrial events; all of which has

placed the financial and business world behind any sane constructive health program.

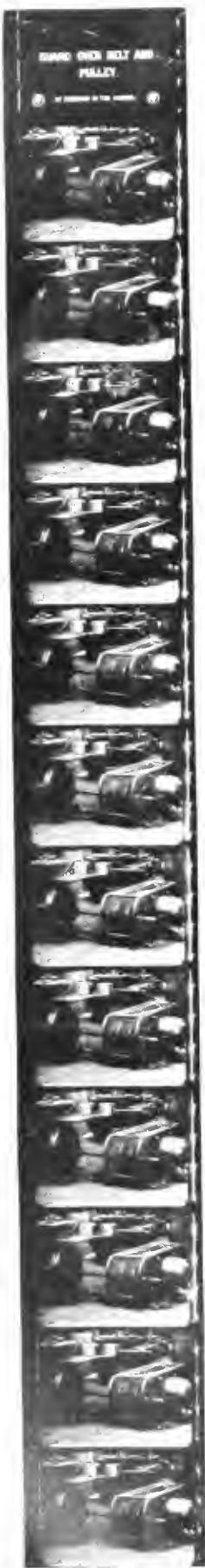
The question that is uppermost in forward looking medical minds today is this: Will the profession make use of the advanced outpost that it now holds in the public eye and its latent power for good, or will it ignore this most favorable opportunity of raising the standard of living of all the people through the better health conditions through centralized intensive health work? Will it be sufficiently socially minded to work as a unit for a broad national, state, county, and municipal health reorganization?

An initial test of our unity of purpose is now under way. The profession and the laity are at one in the opinion that some governmental action should be taken for the control of the next epidemic of influenza. The Harding-Fess Senate joint resolution No. 76 provides five million dollars "for the investigation of influenza and allied diseases, in order to determine their cause and methods of prevention." With an admitted economic loss approximating four billions from the last epidemic, the request for this amount of money is most reasonable.

In the present temper of the country, the passage of these two bills can easily be secured if the profession interests itself in their enactment. Every member of the American Medical Association should write a short letter to his Congressman and Senator in behalf of these two bills.

The officers of the various medical associations, national and state, will prove themselves unworthy of their trust if they do not become active, insistent proponents for these bills. It is for these groups to secure the interest and support of the business interests of the country in behalf of this legislation. Failure can be charged to them, and the public will be in no pleasant temper if some national effort is not under way when the next epidemic of influenza occurs. Are we petty in our social planning, or will we use our latent power?

EDITOR.



USES OF MOTION PICTURES IN INDUSTRIAL MEDICINE

BY LESLIE WILLIS SPRAGUE, DIRECTOR, INDUSTRIAL SERVICE SECTION, COMMUNITY MOTION PICTURE BUREAU, NEW YORK CITY

THIERE are humane as well as economic reasons for the wise use of every possible agency of industrial health. Sickness is one of the specters which stands at all times outside the workman's door ready to lead dire poverty in by the hand. The tragedy of sickness in the laborer's home, especially when the breadwinner is disabled, is one under which the millions groan.

The charity that relieves distress in times of illness, even the more just and considerate sick-and-accident benefit, is less wise and less benevolent than any measure which prevents actual need by keeping the workers in health and strength.

The average loss of work-time through sickness amounts, according to a recent study, to six days a year for each worker. This seems a very low estimate, yet to the employer as to the workers—and not less to the community—the statement suggests an economic loss which may profitably be considered in any discussion of expenses connected with health-education; and any expense connected with the use of motion pictures in industrial health-education may well be met out of the saving of labor-time lost through sickness and accident, leaving, as I believe, a very large balance on the credit side of the ledger.

Enemies to Industrial Health

Contagion, fatigue, and accidents are the three enemies to health and labor effectiveness which any promotion of industrial health must consider. Periods of epidemic, such as the widespread influenza of the autumn of 1918, make dramatic the need not only of industrial sanitation, but also of the wisest public opinion and the earnest personal cooperation in each industrial group in an effort to prevent the spread of disease. Industry is applying the lessons learned by army officers concerning venereal diseases and their methods of promoting an intelligent moral attitude toward vice.

Very much can be done by motion pictures to disseminate knowledge regarding contagion, and the necessity of self-protection and general cooperation on the part of workers against contagious diseases. The United States Army found "Fit to Fight" an effective weapon against the spread of venereal diseases not only among soldiers, but also in industrial plants. Far



*The second of a series of three illustrated articles by Leslie Willis Sprague describing the use of the motion picture in promoting interest in public health. The series includes articles on the following subjects: (1) "Motion Pictures in Public Health"; (2) "Uses of Motion Pictures in Industrial Medicine"; (3) "The Motion Picture in Industrial Disease." The first of the articles appeared in the August issue.



from satisfactory as are the motion pictures "Fit to Fight," and its companion, "The End of the Road," both devoid of all power of delicate suggestion, they have, nevertheless, proved the great possibilities to be achieved by motion pictures in health campaigns.

Many industrial communities are in need of serious sanitary reforms which, in order to be effective, depend upon the interest and personal cooperation of the workers. Tuberculosis, typhoid, and other threatening and devastating contagious diseases can be stamped out only by a vigorous and enlightened opinion in which all members of the community share. These subjects have been well treated by motion picture producers and there is available a rather adequate supply of films which forms the most effective health campaign an industry can possibly undertake.

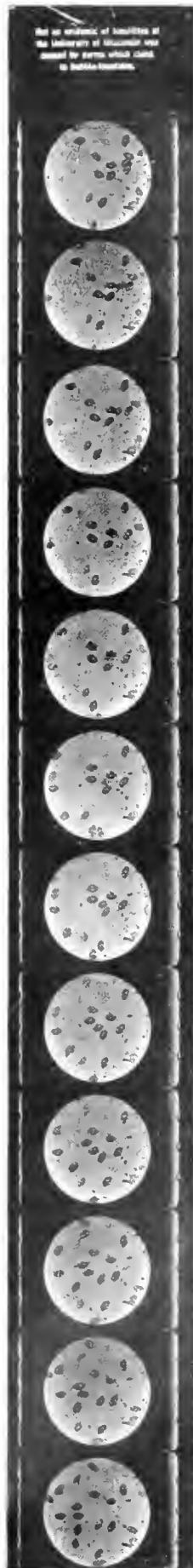
Relieving Fatigue

The subject of fatigue is one which needs more thorough study and a wider consideration by both workers and employers. Efficiency, the proper length of the working-day, and other matters vital to industrial progress and human welfare are involved in a mastery of this problem. It is safe, however, even now to say that unwise ways of work and foolish ways of spending the rest-hours, ill considered diet, the lack of adequate and proper recreation, physical and mental, lie at the base of some of the most serious losses which productivity sustains, to the detriment alike of employees, employers, and the general public. Instruction concerning proper diet, sleep, ventilation, and exercise can be given by motion pictures now available, even though a more adequate treatment of these themes should receive the attention of industrial leaders and motion picture producers.

Pictures presenting the appeal of athletics may successfully be used to develop activities along this line. Motion pictures may also be the means of stimulating country walks and other health-giving habits. Such pictures as "Ten-Minute Vacations" will be useful to the industrial manager who understands the value of organizing the rest-moments of his workers.

By the selection and projection of picture programs in the industrial plant or in the industrial community, it is easily practicable for the industrial manager greatly to further any particular reform or helpful project he may undertake, creating a general and effective interest in the measures proposed.

Safety first has assumed sufficient importance in many minds to call forth the safety engineer and the campaign expert who organize in different industries periodic campaigns in behalf of safety. Motion pictures have been put rather extensively into the service of safety campaigns, and there are many films which present information and make the needed appeal to the workers. Some of these films, for example, "Father and Son," emphasize the employer's responsibility and



Not an exhibition of facilities at the University of Minnesota was deemed necessary which could not be reproduced.

rquent neglect, and it would not be impertinent in some instances if the workers were to provide programs of such films for the education of employers. There are other films which convince workers of their need of mutual aid in adequate protection, different picture programs representing devices used in different industries. Any intensive campaign in behalf of safety is inadequately planned which does not make use of motion pictures as one of the means to secure the workers' interest and cooperation.

Much is still to be done in the production of motion pictures which will give, even to those who cannot read, the motive and the knowledge necessary to the promotion of industrial health; but more is to be done by the employment manager, the health officer, and the welfare secretary to utilize, in preventive and constructive ways, the

picture programs now available for the effective awakening and education of the workers in matters of contagion, fatigue, recreation, and safety.

The foreign language titles bring the motion picture appeal within easy reach of all nationalities. This is a matter of great importance to the dangerous occupations in which, often, the majority of the laborers are not English speaking.

Although constituting but one of the many profitable ways by which motion pictures can be applied in industry, their use in health propaganda is sufficient justification for the installation of motion pictures in every industry, particularly at this time when the utmost labor power of the nation is demanded for the sake of increased production and when humane considerations are urgently needed as a safeguard against social unrest.

ANILIN POISONING—ITS DIAGNOSIS AND TREATMENT

BY R. P. ALBAUGH, M.D., CLEVELAND, OHIO, FORMERLY DIRECTOR, DIVISION OF INDUSTRIAL HYGIENE, OHIO STATE DEPARTMENT OF HEALTH

ANILIN is one of the newer industrial poisons encountered in the United States and has been the cause of poisoning in the manufacture of anilin and its derivatives, in dyeing establishments, in the manufacture of rubber goods, in reclaiming rubber from scrap, and in using certain washes for printing press rollers. It is produced by the action of hydrochloric acid and iron fillings upon pure nitrobenzol. The poison may be absorbed through the skin by direct contact or from saturated clothing, by inhalation of vapors and impalpable dust, and also by way of the digestive tract. It is similar in action to the other amido compounds of benzol and its homologues, all being blood poisons causing the formation of methemoglobin with consequent "internal suffocation."

Symptoms.—In acute cases the symptoms vary from mild to severe. Although the onset of severe symptoms may be sudden, there is usually pallor of the skin and mucous membranes with slight cyanosis, a feeling of weariness and weakness, vertigo, unsteady gait, defective power of orientation, and tense, rapid pulse. A swarthy cyanosis rapidly develops with bounding pulse, air-hunger, lowering of sensibility, and bloody urine. Sudden prostration may occur with cold, pale, moist skin; blue lips, nose and ears; and weak, thready pulse, followed by convulsions, deep coma, and death. At first the urine is usually normal; later it becomes smoky to bloody in appearance.

In chronic cases, which occur less frequently, there are anemia, slowing of the pulse, digestive disorders, headaches, vertigo, unrestful sleep, and disturbances of sensibility.

Diagnosis.—The importance of blood examination in the diagnosis is evident when it is considered that usually there are an increase in number of red blood cells with loss of hemoglobin, a low color index, degeneration and imperfect regeneration of red corpuscles, a decrease in polymorphous leukocytes, and an increase in lymphocytes. In the absence of blood examination it is usually sufficient to observe the cyanosis, the dark colored urine, the odor of anilin in the breath, the rapid pulse, the dyspnea, and the nervous symptoms, and the history of exposure.

Prognosis.—Many men working in anilin constantly seem to acquire a tolerance to it, but if symptoms once manifest themselves, there is usually a hypersensitiveness to the poison. Recovery in the initial milder cases is usually prompt, while symptoms in the severer cases may not subside for several weeks. It is good practice, therefore, to advise patients against re-exposing themselves.

Treatment and Prevention.—Persons exhibiting symptoms of anilin poisoning should be given the benefit of fresh air at once. If anilin has come in contact with the skin or clothing, the clothing should be changed at once and the body flushed with cool water. Oxygen may be administered in connection with artificial respiration.

In severe cases, heart stimulants are indicated, especially camphorated oil. Alcohol should be avoided. Prevention depends upon effective ventilation to prevent the inhalation of fumes, the

handling of anilin and attire of workmen in such a way as to prevent contact with the skin, and provisions for the prevention of ingestion of anilin.

MEDICAL BENEFITS AND THE MEDICAL PROFESSION UNDER WORKMEN'S COMPENSATION LAWS

BY CARL HOOKSTADT, UNITED STATES BUREAU OF LABOR STATISTICS, WASHINGTON, D. C.

WORKMEN'S compensation laws usually provide two kinds of benefits—money benefits and medical treatment, the liberality of which vary greatly among the several states. Of the forty-five compensation laws enacted in the United States up to July 1, 1919, only six¹ place no limitation except reasonableness upon the amount of medical treatment which the employer must furnish in cases of industrial accidents. The laws of Alaska, Arizona, and New Hampshire provide no medical service whatever except that in fatal cases involving no dependents the medical expenses of the last sickness shall be paid by the employer. All of the other laws limit the employer's liability either as to length of time or amount, or both. Table I shows the medical benefits provided under the several compensation laws in the United States.

Kind of Service

Most of the states provide that "reasonable or necessary medical, surgical, and hospital service" must be furnished, leaving the question of reasonableness or adequacy to the commissions or courts to determine. Thirty states include medicines within this provision; 18² include surgical appliances and supplies; 10³ include nursing; while Nevada, Oregon, Washington, and the Federal Government include transportation.

It must not be understood, however, that the

What is the best solution of the medical fee question under workmen's compensation laws?

Should the employer or the employee have the right to select the physician in industrial accident cases? And should this privilege be exclusive or restricted?

How may the burden of cost for medical and hospital services under compensation acts be equitably distributed?

How have the various states dealt with these and other questions of like gravity? The comprehensive survey of policies in all states presented herewith will help to answer some of these questions.

and thereby reduce their compensation costs.

Although adequate medical treatment is absolutely essential to complete rehabilitation and restoration of an injured employee's earning capacity only six laws, as already noted, require the employer to furnish unlimited medical service. Several states make no provision whatever for medical treatment, while in others the low maximum limits make adequate treatment impossible. Some idea of the inadequacy of the medical service provisions may be obtained from a study of the severity of industrial accidents as shown in Table II.

Two Weeks' Care Inadequate

The Nevada data includes all non-fatal accidents while the other states cover only temporary disabilities. Using the Washington statistics as the criterion, it will be seen that in those states which limit the medical service to two weeks⁴ about 68 per cent of the accidents are inadequately provided for, and even in the 90-day states⁵ 7 per cent are insufficiently provided for.

The inadequacy of medical service due to statutory time limits is still further increased in some states by limitations upon the amount or cost of treatment which employers are required to fur-

¹ California, Connecticut, Idaho, North Dakota, Porto Rico, and the Federal Government.

² California, Colorado, Delaware, Idaho, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Minnesota, Nevada, New York, Oklahoma, Pennsylvania, Tennessee, Vermont, and Wisconsin.

³ California, Idaho, Indiana, Kansas, Kentucky, Maryland, Nevada, New York, Ohio, and Utah.

⁴ Delaware, Montana, New Mexico, and Vermont.

⁵ Kentucky and Michigan.

nish. These maximum limitations range from \$50 in Montana and New Mexico to \$500 in Utah. The effect of such limitations may be seen from an investigation of medical costs of accidents made by the Ohio industrial commission in 1913. This study disclosed the fact that in 20.6 per cent of the permanent disability accidents the medical costs per case were \$50 or more; in 8.6 per cent the costs were \$100 or more; and in 2.6 per cent the costs were \$200 or more. The corresponding percentages for fatal accidents were 26.6, 13.3, and 6.7, and for temporary disability accidents (over 1 week), 2.2, 0.6, and 0.1. In several of the states the maximum limit is high enough to cover practically all except the more serious injuries, but it is in the severe injury cases that the workmen's needs are greatest.

This failure to provide adequate medical service seems to indicate not merely the opposition of the employers but to reflect the inability of society to comprehend the great importance and social value of the speedy restoration of the earning capacity of injured workers. The benefits provided for in compensation laws, instead of being regarded as a means of effecting rehabilitation, have been considered as an end in themselves. Compensation commissioners have too often been satisfied with the performance of their duties merely if the benefits provided in the acts have been paid in accordance with the statutory requirements.

Selection of Physicians

Should the employer or the employee have the right to select the physician in industrial accident cases? And should this right or privilege be exclusive or restricted? These mooted questions have in recent years received a great deal of attention in the workmen's compensation field. The subject is particularly important because it directly affects the employee, the physician, and the employer. The employee is interested in his own speedy recovery and in having a physician in whom he has confidence; the employer is interested in reducing his compensation and medical costs; and the physician is interested both financially and professionally. The interplay of these various and sometimes conflicting interests constantly causes friction and creates innumerable difficulties.

The statutory provisions and actual practices as regards selection of physicians are as follows: In eight states injured employees are granted the right to select their own physicians at the employers' expense. In four of these states¹ this right is granted specifically in the act, while in

four states² the employee is granted this privilege by virtue of rules or interpretations of the administrative commission. In addition, Nebraska permits the employee to choose the physician in dismemberment or major surgical operation cases, and the Texas act allows the employee to

TABLE I
AMOUNT OF AND CONDITIONS FOR MEDICAL SERVICE UNDER COMPENSATION LAWS

State	Period	Medical and surgical aid	
		Maximum amount and other qualifications	
Alaska	-----	Only in death cases involving no dependents; maximum \$150 for medical expenses between injury and death.	
Arizona	-----	Reasonable medical and burial expense in death cases involving no dependents.	
Cal.	Unlimited	Such service as reasonably required.	
Colo.	30 days	Maximum \$200 unless there is a hospital fund. Special operating fee of \$50 in case of hernia; also dental service, maximum \$100.	
Conn.	Unlimited	Such service as deemed reasonable by attending physician. Special provision for seamen on United States vessels.	
Del.	2 weeks	Maximum \$75.	
Hawaii	-----	Maximum \$150.	
Idaho	Unlimited	Reasonable service for reasonable period. Hospital benefit fund may be permitted in lieu of statutory provision.	
Ill.	8 weeks	Maximum \$200; full hospital service while compensation is payable; full medical and surgical aid as long as hospital treatment is required.	
Ind.	30 days	Such service as deemed necessary by attending physician or board. Employee must accept unless otherwise ordered. 30 days additional treatment if necessary in opinion of board.	
Iowa	4 weeks	If requested by employee, court, or commissioner; maximum \$100; \$100 additional in exceptional cases.	
Kansas	50 days	If demanded by employee; maximum \$150.	
Ky.	90 days	Unless board fixes other period. Maximum \$100, or \$200 for hernia operations.	
La.	-----	Reasonable services unless employee refuses to accept; maximum \$150.	
Me.	30 days	Maximum \$100; additional service if nature of injury requires.	
Md.	-----	Such service as may be required by commission; maximum \$150.	
Mass.	2 weeks	Longer in unusual cases at discretion of board	
Mich.	90 days		
Minn.	99 days	Maximum \$100; upon request of employee, court may allow additional treatment if need is shown.	
Mo.	8 weeks	Maximum \$200.	
Mont.	2 weeks	Unless employee refuses; maximum \$50 unless there is a hospital fund; special operating fee of \$50 in case of hernia.	
Neb.	-----	Unless employee refuses; maximum \$200; employer not liable for aggravation of injury if employee refuses to accept.	
Nev.	90 days	Time may be extended to 1 year by commission; transportation furnished.	
N. H.	-----	Medical service and burial expenses only in death cases involving no dependents; maximum \$100.	
N. J.	4 weeks	Unless employee refuses; maximum \$50; in unusual cases bureau may extend period to 17 weeks but not over \$200; special operating fee of \$150 in case of hernia.	
N. M.	2 weeks	Maximum \$50, unless there is a hospital fund; special operating fee of \$50 in case of hernia.	
N. Y.	60 days	Such service as may be required or requested by employee.	
N. D.	Unlimited	Such service as nature of injury may require.	
Ohio	-----	Such service as commission deems proper; maximum \$200, except in unusual cases.	
Oklahoma	-----	Practically unlimited service.	
Oregon	-----	Includes transportation; maximum \$250; commission may allow additional service.	
Pa.	30 days	Unless employee refuses, in which case employer not liable for aggravation of injury; Maximum \$100, except in hospital cases.	
P. R.	Unlimited	Necessary medical service and sustenance as prescribed by commission.	
R. I.	4 weeks	Maximum \$100.	
S. D.	4 weeks	Longer at option of employer; employee must accept; maximum \$100.	
Tenn.	30 days	Two weeks additional in hospital cases.	
Texas	2 weeks	Maximum \$500; hospital benefit fund permitted in lieu of statutory provisions.	
Utah	-----		
Vt.	14 days	Maximum \$100.	
Va.	30 days	Such service as deemed necessary by attending physician or commission; longer at option of employer. Employee must accept unless otherwise ordered by commission.	
Wash.	Unlimited	Transportation included; employees must contribute one-half medical cost.	
W. Va.	-----	Maximum \$150; \$300 in severe cases; \$600 in permanent disability cases where disability can be materially reduced.	
Wis.	90 days	Maximum \$100.	
Wyo.	-----	Commission shall furnish necessary medical service for reasonable period unless employee refuses; transportation furnished if necessary.	
U. S.	Unlimited		

¹ Colorado, Massachusetts, Rhode Island, and Washington.

² Nevada, Ohio, Oregon, and Vermont.

select the physician if the employer, having engaged a contract physician, fails or refuses to file the contract agreement with the industrial accident board. The laws in five states⁸ grant the employee the right to select his own physician—at the employee's expense, however.

In twenty-one states⁹ the employee is given the right to select the physician at the employer's expense if the latter neglects or refuses to furnish competent medical care, or in an emergency.

Change of Physicians Permitted

Seven states¹⁰ authorize the administrative commission to order a change of physicians if the medical service furnished by the employer is incompetent or inimical to the injured employee. In Washington, also, the state medical aid board, by rule, reserves the right to transfer a man for treatment to a surgeon when it becomes evident that the injured workman is not receiving the service that he should at the hands of the physician of his choice.

In all of the other states which provide for medical service in case of injury, the employer or his representative, the insurance carrier, has the right to select the physician. Most of these laws, however, make no specific provisions as to the selection of physicians, but the courts and commissions generally hold that the obligation of the employer to "furnish" or "provide" medical service carries with it the privilege of choosing the physician. This practice has been based on two theories: First, that the employer is more competent to judge the efficiency of the doctor employed and to provide efficient medical and hospital treatment; and, second, that it is to the interest of the employer to furnish the very best medical and surgical treatment, so as to minimize the result of the injury and to secure as early a recovery as possible. As a matter of practice, however, in quite a large percentage of cases the employee is allowed to choose his own physician, but the extent of this practice depends upon the policy of the employers and insurance carriers. The large employers, especially those having an organized medical service within their establishments, generally insist upon their legal right to select the physician.

No state compensation law makes specific provision for a panel of physicians from which a choice is to be made. California, however, has an incipient panel system, as shown in the following statutory provision: "If the employee so

requests, the employer shall tender him one change of physicians and shall nominate at least three practicing physicians competent to treat the particular case, or as many as may be available if three can not be reasonably named, from which the employee may choose; the employee shall also be entitled, in any serious case, upon request, to the services of a consulting physician to be provided by the employer; all of said treatment to be at the expense of the employer. If the employee so requests, the employer must secure certification by the commission or a commissioner of the competency for the particular case of the consulting or additional physicians." The foregoing provision does not apply, however, to employers' establishment hospital funds approved by the commission.

A majority of the medical profession thus far seem to be opposed or at least apathetic toward the panel system. On the other hand, quite a number of state commissioners and members of the medical profession, especially those who have been in close touch with the administration of compensation laws, have come to the conclusion that some check upon free choice, exercised either by the employee or employer, is necessary.

Moreover, under the present system of selection by the employer, it is not an uncommon practice in some states to allow employees to choose a physician from a panel nominated by the employer or insurance carrier.

Why Employer Should Select Physician

Inasmuch as the burden of paying the medical costs rests upon the employer, it seems reasonable that he should have a voice in the selection of the physician. He is naturally interested in reducing his compensation costs. This reduction depends to some extent upon the speedy restoration of the injured employee's earning capacity, which in turn is dependent largely upon the adequacy of the medical and surgical treatment furnished. Competent medical treatment, however, is not always possible if the selection of the physician is beyond the control of the employer, who is, as a rule, more competent than the injured employee to judge the efficiency of the physician. The foreign, non-English speaking, and not infrequently illiterate workman naturally chooses a physician

TABLE II

PER CENT OF INDUSTRIAL ACCIDENTS OF OVER ONE WEEK'S DISABILITY IN WHICH DISABILITY DID NOT TERMINATE WITHIN CERTAIN SPECIFIED PERIODS						
Disability did not terminate in—	Washington	Nevada	Oregon	California	Wisconsin	
2 weeks	67.7	70.1	62.2	61.2	62.6	
3 weeks	48.1	50.3	41.8	44.9	39.9	
4 weeks	36.4	35.6	29.1	33.5	27.0	
8 weeks	15.3	14.2	10.3	11.0	7.8	
9 weeks	12.5	10.2	8.3	8.7	6.2	
13 weeks	7.5	5.8	4.4	4.1	3.1	

⁸ California, Connecticut, Illinois, Missouri, and South Dakota.

⁹ Connecticut, Delaware, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Maine, Maryland, Minnesota, Nevada, New York, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Virginia, and Wisconsin.

¹⁰ California, Connecticut, Kentucky, Missouri, Nevada, Texas, and Virginia.

of his own nationality, who is often incompetent and sometimes disreputable. Some of these physicians not only attempt to mulct the employers by prolonging treatment, making unnecessary calls, padding their bill, and overcharging generally, but because of their incompetency are an actual menace to the patients themselves. Numerous cases are on record in which injuries that should have had the attention of highly skilled surgeons were treated by physicians without surgical practice and wholly incompetent. Such treatment is always costly to the employer and frequently harmful to the injured workman.

Because of these conditions many employers and insurance carriers have insisted upon their legal right to select the physicians, and the tendency to exercise this right seems to be on the increase. Most of the large manufacturing establishments, and even some of the insurance companies, have established hospitals in connection with their plants. It is maintained that more efficient medical service can thus be rendered at much less cost. Furthermore, it allows closer medical supervision. A common complaint made by employers is that workmen will not report minor injuries, many of which become septic and develop into serious cases. The prompt attention given to injuries and the close personal supervision made possible through an establishment hospital minimize the danger of blood poisoning and result in earlier recoveries. It is also maintained that malingering can be better controlled and prevented when the employer has supervision over the medical service furnished.

Why Employee Should Select Physician

On the other hand, during the last two or three years, there has been a widespread reaction against the present system of selection by employers, and it may well be asked: Why this reaction if the system is as beneficial as is maintained by its advocates? Three reasons are generally advanced in favor of free choice of physicians by employees.

In the first place, the free and unhampered choice of one's own physician has generally been considered as one of the inalienable rights of mankind. The relationship existing between a patient and his physician is private and personal. Furthermore, the therapeutic value of confidence and faith in one's physician is well recognized by the medical profession, and this confidence naturally is assured when the injured workman selects his own physician. Moreover, the injured man has most at stake. It is he, and not the employer or physician, who suffers; it is his life which hangs in the balance. A man desires a doc-

tor whom he knows, with whom he can freely and unreservedly discuss his ailment, and in whom he has confidence.

Another factor which has influenced the movement for free choice has been the dissatisfaction with the kind of medical service frequently furnished by employers and insurance carriers. While it is true that many employers maintain excellent hospitals with highly skilled surgeons and trained nurses in charge and provide medical treatment even in excess of statutory requirements, this is by no means the general practice. The kind of service furnished by many employers, and particularly by some insurance companies, is entirely inadequate. There has been an increasing tendency to employ contract doctors, many of whom have not been especially competent. Furthermore, physicians employed on a contract basis frequently have more cases than they can take care of properly and in addition are not inclined to give them the same personal attention as would be given by physicians engaged directly by the employee. The evils and abuses of this contract system have been repeatedly pointed out and condemned by compensation commissions and the medical profession.

Returning the Patient to Work

Another important problem is to determine when the injured workman has sufficiently recovered to be able to return to work. Obviously it is to the employer's interest to reduce the disability period as much as possible, and frequently this fact influences unduly the decision of the employer's physician, especially if employed on a contract basis.

The third factor in the movement for free choice has been the opposition of the medical profession to the medical practices of the employers, and particularly of the insurance companies, which have developed under the compensation laws. Physicians have demanded their regular rates—those which they had charged before the advent of workmen's compensation laws. Insurance companies, on the other hand, have insisted that the increased security of payments under compensation and the economic and financial status of the injured employee should be taken into consideration in determining the reasonableness of fees for medical and hospital services. There has also been a tendency on the part of some physicians to pad their bills and raise their rates. As might be expected, such a condition immediately resulted in numerous and acrimonious disputes, between the medical profession on the one hand and the employers and insurance carriers on the other, as to medical fees. The

compensation commissioners were usually able to effect a working compromise, but such compromises have on the whole been unsatisfactory. Insurance companies have refused to pay medical bills unless they were satisfactory, and physicians in retaliation have threatened to refuse to treat industrial cases unless guaranteed their regular rates. As a counter measure employers and insurance carriers have begun to furnish their own medical service, establishing dispensaries and hospitals and engaging surgeons and trained nurses. Obviously a continued extension of the system of establishment hospitals and contract doctors would ultimately exclude a large majority of the medical profession from the field of industrial surgery. It is the evident extension of this practice that causes apprehension in the ranks of the profession and is the motive power behind their movement for free choice of physicians.

Contract Doctors and Establishment Hospitals

When state compensation laws were first enacted many of the larger employers had in operation benefit schemes for the protection of their employees in case of accident or sickness. The compensation laws in about one-half of the states permitted these substitute schemes to continue, provided the benefits furnished equaled those provided in the compensation acts. Thus, many, if not most, of the larger employers in the United States at present have their own organized medical service and establishments hospitals with surgeons and nurses in charge. This is especially true of the far western states where the system of establishment hospital and benefit funds prevails. In fact, the compensation laws of seven western states¹¹ specifically authorize employers to make contracts with their employees for medical and hospital service. Employees generally are required to contribute \$1 a month for the support of these funds and hospitals, but the medical service furnished usually covers sickness as well as accidents.

One criticism of the contract system is that the cost of the medical benefits under the compensation law, a burden it was intended for the employer to assume, is shifted to the employees. Another criticism is the commercialization of the medical service by non-medical men. In Washington, for example, the contract plan has given the state medical aid board considerable trouble because of such commercialization. These non-medical men form a hospital association and then secure the services of a surgeon, pay a small part of the proceeds to him for the work and keep the remainder. This has brought about a lot of dissatisfaction among the workmen and physicians

of the state and has caused some agitation toward state hospitals for the care of workmen under the compensation act.

The most potent criticism against contract practice is that through it injured employees receive inferior service. As already stated, many employers furnish medical and surgical treatment of the highest character, but that is not the general custom and is especially not true in case of many insurance companies. The California Industrial Accident Commission¹² in its 1916-17 annual report is unfavorable to the contract system.

Medical and Hospital Fees

Probably no one phase of workmen's compensation has created more administrative difficulties or caused more ill feeling than the question of medical and hospital fees.

Prior to the enactment of workmen's compensation laws there had been little distinction in the treatment of injuries which arose out of the employment and those which arose outside of the employment. In either case the person sustaining the injury was financially responsible for the medical and hospital treatment furnished; but since a large proportion of such persons were unable to pay for the treatment received the hospitals and physicians accepted them as charity patients, usually charging low rates and collecting fees only in cases where the patient could afford to pay. The compensation laws, however, definitely placed upon the employer the burden of furnishing medical services in industrial accident cases; but no provision was made as to medical fees, except that they should be reasonable, and, in sixteen states,¹³ that they should be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living when treatment is paid for by the injured persons. In view of these facts the medical profession as a whole maintained that medical services in industrial cases should be remunerated at full value and that such cut rates and charity as had been granted the sufferers by hospitals and doctors should be discontinued. They also believed it to be an injustice to expect the medical profession to adopt a sliding scale of fees, governed by their clients' ability to pay, when other institutions and businesses, including the very same employers and insurance companies, are not subjected to the same principles and practices.

Obviously, the medical profession, in common

¹¹ Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Washington.

¹² Report of California Industrial Accident Commission, 1916-17, pp. 21, 22.

¹³ Connecticut, Hawaii, Idaho, Indiana, Kentucky, Louisiana, Maryland, Minnesota, Missouri, Nevada, New York, Oklahoma, Tennessee, Texas, Vermont, and Virginia.

with other professions and vocations, should receive a just and adequate remuneration for its services. The ordinary fee rates of physicians are probably determined in a general way with reference to the paying ability of the moderately well-to-do classes of society. Undoubtedly they are also influenced by the fact that much of the medical service rendered the poorer classes will never be paid for. In view of these facts what would be a just basis for determining reasonable and equitable fees for medical services? As already stated, sixteen laws provide that the standards prevailing in the community for treatment of persons having the same standard of living should be taken into consideration. Three states¹⁴ further provide that the increased security of payment guaranteed by a workmen's compensation law should be taken into account. Practically all of the state commissions do consider these factors in determining the reasonableness of medical fees.

The ultimate determination of the reasonableness of medical fees in workmen's compensation cases lies with the administrative commissions and courts.

Medical Fee Schedules

In twenty-eight¹⁵ states the compensation commissions or courts are specifically authorized to approve, regulate, or fix the amount of medical and hospital fees. The laws of two states¹⁶ authorize the commission to issue a table or schedule of fees which shall serve as a basis for compensating medical services rendered. Moreover, medical fee schedules have been put into effect, under general authority to regulate or approve medical fees, by the compensation commissions of the following states: California, Maryland, Nevada, Ohio, Oregon, and West Virginia. Also, the Massachusetts and New York compensation commissions, in approving medical fees, have been governed by a medical and a hospital fee schedule formulated in cooperation with the medical profession, hospitals, and insurance companies of the state. In New York, however, the state medical society later repudiated the fee bill because the insurance companies interpreted it as "a maximum fee bill, not as a minimum fee bill."¹⁷

In addition to the foregoing official schedules promulgated by the state compensation commissions, medical fee schedules have been adopted quite extensively by insurance companies, by many county medical societies, and by a few state medical societies. There is a fundamental difference, however, between the schedules adopted by the medical societies and those adopted by the insurance companies. The former are generally minimum fee schedules, whereas the latter are

maximum schedules. Moreover, the medical societies have difficulty in maintaining strict adherence to their schedules on the part of the members of the profession; on the other hand, relatively few of the experienced physicians and surgeons will sign the schedules of the insurance companies.

How Fees Are Fixed

The rates contained in the fee schedules adopted by the several states enumerated above are somewhat lower than the regular rates of the profession. In many of the states the rates approved vary between different communities, depending upon the prevailing rates in the locality. In Massachusetts, for example, the guideposts by which the industrial accident board determined the reasonableness of fees were (1) the locality in which the doctor practises, (2) the nature of the complaint, (3) the ability of the man to pay, and (4) the standing of the practitioner in his profession.¹⁸ In Ohio,¹⁹ however, the amount of medical fees was determined with a view to impartiality and uniformity.

Because of the great variations in kind and amount of treatment required even for similar and apparently identical injuries, it is impossible to determine in advance what would be a reasonable fee for a particular injury. Consequently a medical fee schedule is commonly used merely as a guide or as a minimum fee table.

Because of the medical fee question, workmen's compensation laws have been the subject of a considerable objection and adverse criticism by a part of the medical profession. The large majority of the profession have cheerfully cooperated with the commissions in the administration of the laws in the interest of the working classes for whose benefit such laws were enacted, and it is seldom indeed that a compensation commission has had difficulty with the higher class physician and surgeon.

Many Angles to Fee Problem

The problem of determining the reasonableness of medical fees is further complicated when the injured man is sent to the hospital. The added difficulty arises from the fact that hospitals are in part charitable institutions and supported by donations of public spirited citizens. Hospitals

¹⁴ Idaho, Kentucky, and Texas.

¹⁵ California, Colorado, Connecticut, Delaware, Hawaii, Kansas, Idaho, Iowa, Illinois, Indiana, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nevada, New York, Ohio, Oklahoma, Rhode Island, South Dakota, Tennessee, Texas, Utah, Virginia, and Wisconsin.

¹⁶ Colorado and Washington.

¹⁷ Quoted from American Medical Association Bulletin of May 15, 1915, p. 388, by Dr. I. M. Rubinow in July, 1917, issue of the Journal of Political Economy, p. 717.

¹⁸ First annual report of Massachusetts Industrial Accident Board, 1912-13, p. 56.

¹⁹ Ohio Industrial Commission Bulletin, Oct. 1, 1914, pp. 14, 15.

usually have three classes of service,—public wards, semi-private rooms, and private rooms. The public wards are maintained at nominal prices, frequently less than actual cost, for patients who have limited means, which includes most of the industrial workers. Moreover, in case of public ward patients no charge is made for the attending physician or surgeon. For the other classes of service the rates are not only much higher, but fees for attending physicians and surgeons must be paid in addition. The question immediately arises, should injured employees be placed in public wards, as they probably would have been before the enactment of compensation laws, or should they be placed in semi-private or private rooms? If the former practice is followed the employers and insurance companies are benefited at the expense of the physicians and hospitals; whereas, if the latter plan is adopted, the remuneration received by the medical profession would not be in accord with the compensation acts, which provide that medical fees should "be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living when such treatment is paid for by the injured persons"; and consequently employers and insurance carriers would be required to pay more than was intended by the law. The insurance companies maintain that were the injured workman to pay for his own medical and hospital bills he would in most cases be sent to a public ward, and physicians would graduate their charges according to the patient's income and ability to pay.

On the other hand, the hospitals maintain that they should not be asked to treat compensation cases at a loss. The practice among hospitals varies. Some place compensation cases in public wards, some in semi-private rooms, and others maintain a "compensation ward" at intermediate rates. The practice of doctors in sending patients to hospitals also varies. The majority, however, recommend that patients be placed in semi-private wards, thus entitling them, according to the rules of the profession, to charge for their services in hospital cases.

However, it is the consensus of compensation commissions and many physicians who have investigated the matter that workmen's compensation laws have increased rather than diminished the income of the medical profession, and this despite the fact that the rates in industrial accident cases have been somewhat reduced. Certainly the effect has not been detrimental in a pecuniary way since the lower schedule of fees has been largely counterbalanced by the certainty of payments.

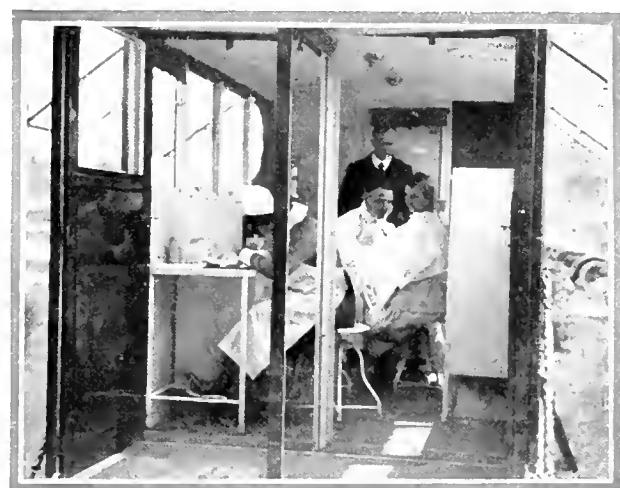
A TRAVELING TUBERCULOSIS CLINIC

At the conventions of the health organization and welfare societies in Chicago this year there has been exhibited a large, attractive motor-hospital which travels to



This traveling hospital goes to the patient, if the patient is too ill to come to the hospital. (Photo by International Film Service Co., Inc.)

all parts of the city. It is operated by the Chicago Tuberculosis Hospital and is sent to any place where a case of tuberculosis is reported, whenever it seems more desirable to visit the patient at his home. The automobile-hospital



The motor-hospital is operated by Chicago's Tuberculosis Institute is sent to any place in Cook County where it is desired to hold a clinic. It carries two nurses and a physician who co-operates with the physician in the communities visited. (Photo by International Film Service, Inc.)

carries two nurses and a physician. They may be called for consultation by a resident physician wherever visits are made with the traveling clinic.

Special Schools for Handicapped

The legislative measure introduced in the last session of the Pennsylvania Legislature covering the matter of special school training and special classes for tuberculous children and children having defects of sight or hearing, as proposed by Dr. Thomas E. Finegan, superintendent of public instruction, has been adopted by the assembly and has received the signature of Governor Sproul. The act was drawn up by the Public Charities Association. It provides for special training for incorrigible children as well as the physically handicapped. Clinics for medical and mental examinations are authorized.

HOW INDUSTRIAL MEDICINE IS EXTENDED THROUGH MUTUAL BENEFIT ASSOCIATIONS

BY CHARLES H. LEMON, M.D., F.A.C.S., CHIEF SURGEON, MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY,
MILWAUKEE, WIS.

THOSE of us who have specialized in industrial medicine and surgery have learned that the care of the health of large groups of workmen is a very different matter from the ordinary practice of medicine in which the family is the unit. If the relation between the physician and family for any reason becomes unsatisfactory to either of the parties, the relation is easily terminated and, except for some neighborhood gossip, the matter is soon forgotten; another physician is employed; another patient comes to the doctor, and the former relation is perfectly balanced without prejudice to either. With a group to deal with, however, the situation between the patient and doctor is not taken care of so easily. We are dealing with the individual or the family it is true; but the individual and the family have a corporate relationship; and the moment this situation occurs, the entire group becomes an interested party. This phase of our work is soon impressed upon us, because we must deal with the man higher up; and sometimes, the man higher up is the general manager, who is personally interested in the welfare of each of his employees without distinction as to the class of employment.

Wise Selection of Physicians

In selecting men for association physicians, care is therefore necessary that none be employed except those who have first had a good technical education; which would imply a proper hospital internship; and second, those who are willing to work and who are what is popularly known as good mixers.

The amount of compensation that a mutual benefit organization can pay for medical services has definite limits. I do not mean by this that the doctors should be underpaid, or that cheap, inefficient service should be accepted. In order to

THE PHYSICIAN AND THE GROUP

Preventive medicine finds its highest application in the group form of service.

The individual physician cannot possibly care for as large numbers in serving a miscellaneous population as in the care of a group. By reason of this the mutual benefit association is enabled also to pay the physician a larger fee in the aggregate.

With the cooperation of employees, both individually and through their representatives, the directors of the association, there is opened an opportunity for the conservation of health such as is presented to few groups throughout the country.

obtain the maximum efficiency, the mutual benefit association must be subsidized by the employing corporation, in the matter of furnishing without cost to the association a surgeon's services, the surgeon acting as medical director and performing the necessary ordinary surgical operations for the Employees' Mutual Benefit Association as a part of his usual duties as chief surgeon for the corporation. Fortunately for the

groups represented, surgeons are employed by the operating companies whose services are given by the company to the Mutual Benefit Association, gratuitously. By this method a supervising medical director is provided, and the medical service furnished is limited in its excellence only by the character, experience, and professional standing of the chief surgeon of the operating company.

Attitude of Employee-Patients

That the service of the physicians is exacting is well known to the physicians themselves. The man calling for a doctor is interested only in his own requirements and it is our experience that he frequently is less considerate in waiting for an association physician than he would be if he were calling for a private doctor. This, however, is not frequently the case, as the large body of our membership in the Association is composed of men and women who are reasonable and intelligent.

It has been the experience in Milwaukee that a central office is essential for the handling of any large group of employees. At the general offices at the Public Service Building all are welcome without reference to the districts in which they may reside. It is noted with interest that an increasingly larger number year by year come to the general office for consultation even while under the care of the local physicians. A large

*Read before joint conference of chapters of Milwaukee Electric Railway and Light Company's Employees' Mutual Benefit Association, Milwaukee, Wis., March, 1919.

number also, year by year, are being referred to the general office by the association physicians in the surrounding districts outside of Milwaukee, because they can avail themselves of the larger experience as well as of the various clinical means of diagnosis which are not available elsewhere.

The public generally is being educated to the larger use of the x-ray as a means of diagnosis. They are becoming equally insistent, and properly so, in the demands for more careful laboratory investigation of their ailments. These facilities should be provided by the various associations, if they are not already so provided. This is an age of specialties and a successful physician in the service of an employees' mutual benefit association must be a good all around man. When he is unable to make a diagnosis, it is his business to refer the case to his superior or bring the case to the general office for consultation, or invite the chief surgeon or his assistant to see the case in consultation at the patient's house if he is unable to go out.

Personal Element in Group Practice

It is team-work such as this which is absolutely essential to the successful operation of any group plan of medical service. I feel that this service should be made so excellent that it can successfully compete with any private service in a locality where large groups of men are being employed. If the members are impressed by the fact that they are being given the very best service that can be given them in their locality, they are bound to be satisfied. If this service is the best that can be had, results will be obtained and will be shown in saving of "day's disability" as well as in the saving of life itself. It is the early, correct diagnosis followed by appropriate treatment that turns the trick as far as we are concerned. The man who is a good mixer alone with a bold front, will not last long among a discriminating group of employees, such as are found in our large public utilities. He must have a scientific mind as well as a trained mind if he is to succeed. All the pleasant remarks in the world will not compensate anybody for the death of a child treated upon a wrong diagnosis; and a man with an acute appendicitis will not later look with favor upon the doctor who treated him for acute indigestion.

Personal Relationships in the Group

It should be the aim of the association physicians to render the best service they are capable of; to do it cheerfully and promptly. At the same time it becomes the duty of the association members to give the doctors the benefit of the doubt,

if they are delayed in answering their calls, and at all times to regard the doctors as their friends who are interested solely in their welfare.

There is a growing opposition in this country to social insurance on the part of the medical profession. This opposition is based on fear rather than on facts; because the profession sees in the group medical service the surrender of certain privileges that they have ever regarded as personal and as prerogatives. My experience based on seven years of observation of the working of this group medical service, is that with the lapse of time, each physician makes more and more friends among the membership of his own particular group, and that there is really no difference in the personal relationship of an association physician to his patient, as a member of a group, than there would be if he were a private doctor employed from time to time by an individual.

From the standpoint of health, the group plan has many advantages. A service which can be had for the asking will be used effectively. Men are curious to know what ails them, and this curiosity can be satisfied if no extra expense is incurred in the investigation. And why should not this be so? If medicine is of any use whatsoever, its greatest usefulness should be the seeking out of blind disorders and remedying them, before they have become dangerous factors in a man's life. Preventive medicine, therefore, finds its highest application in the group form of medical service. Experience has shown that a man with a cold, or a headache, or a beginning rheumatism in the joints, or with some other equally slight ailment, is not going three or four miles to consult a doctor. If at the place of his employment a doctor is available at a given time during the day, experience here has shown that he will consult the doctor. Any intelligent physician knows the meaning of these early signs of sickness and he can and will administer appropriate remedies or give suitable advice, which will check the disease in its beginning.

Reduce Time-Loss from Disability

In Milwaukee in 1916, by this intensive medical service, the day's disability among our trainmen was reduced to four and a half days per man per year. During the recent epidemics of the Spanish influenza the situation could not have been handled by our medical force, if centralized medical service were not to be obtained.

There is a physician present in every car-station and in our car-shops for a period varying from thirty minutes to an hour and a half every day, except Sundays and holidays. In addition at the surgeon's office in the Public Service Build-

ing, patients are seen from 11 to 12:30 o'clock in the morning and from 3 to 5 o'clock in the afternoon. No request has ever come to us from the employees to alter this plan. I, therefore, assume that it is both acceptable and helpful.

In considering "Why and How to Keep Well," I might quote you the words of Dr. B. S. Warren, Assistant Surgeon General, United States Public Health Service, in a recent bulletin.¹

In these days of progress in preventive medicine there is some tendency to separate too sharply the preventive from curative medicine. It should not be forgotten that an adequate medical service to the whole people will do more to prevent disease and disability than any other single measure to be considered. At present the people in the United States are paying out money sufficient for the maintenance of an adequate medical service, but fail to receive it. This money, however, is spent in such a haphazard manner that the service is not only often inadequate or worthless, but at times actually harmful. For one item—drugs—the United States spends \$500,000,000 a year. This sum alone, if properly expended, would buy all necessary drugs and add \$2,000 a year to the income of each of the 125,000 physicians in active practice in the United States. It may be safely stated that an adequate medical service cannot be had except in our medical centers, and in these centers only the rich and some of the charity patients receive such service. The great middle class cannot afford such expense. Since the people as a whole are paying the price for the best, there should be no reason why they should not have the best. With a proper organization, distribution, and training of the medical and sanitary personnel of the country, and a proper expenditure of the funds now being spent for medical purposes, there would be available, to every person, adequate medical and hospital services and supplies. With such service closely coordinated with, or forming part of, the health department, it needs no argument to show that disease prevention would begin at the source—the bedside, and eliminate a large proportion of disease.

"Industrial hygiene is another subject which must be given careful consideration in working out a unified health-service program. All labor departments are vitally concerned in this subject. The War Labor Board announced as one of the principles governing its awards, a living wage sufficient to maintain a family in health and comfort. With such a recognition of the importance of health it then becomes the duty of the health departments to work out the standards of health in industry and to cooperate with the labor departments in their enforcement. In this group of the population, as in school children, it should be clearly recognized that the health departments are responsible for the health of all the people and that the industrial workers are no exception."

In the city of Milwaukee we have an excellent health department, directed by an unusually competent health officer. The company at all times has cooperated with the health department, not only in matters concerning the health of our employees, but in conserving the health of the patrons who ride upon the company's cars. Perhaps the most important conferences held by the health department in the recent epidemic of the Spanish influenza were those held with the com-

pany's general manager, S. B. Way. The cars were disinfected; notices to prevent crowding were freely used; ventilators were blocked open so that those who were not cooperating could not close them. All social activities were abandoned, and preventive measures, such as the use of antiseptic powders, were employed. The company believes these measures had much to do not only with conserving the health of its own employees on the cars, but in helping to conserve the health of the patrons who rode on the cars. It is my observation, that a large percentage of people, among whom are many physicians, are indifferent to any measures to preserve their health. The doctor with the pulmonary tuberculosis is the last one to sleep in a tent or even keep his window open at night. An individual who believes in personal rights to the exclusion of all others rights is the man or woman who insists on boarding an already full car, when one more than one-half empty is less than half a block away.

Preventive Measures Made Effective

The Employees' Mutual Benefit Association has been a pioneer in Wisconsin in the matter of health conservation, by treating men in groups, and not only treating them, but taking other preventive measures for the health.

The rich can afford the best service there is and the poor man can get the same service in the well organized hospital clinics. It is the middle class, the shop worker and the industrial worker, who are unable to get either; and it is mediocre medical service which has filled the graveyards and the institutions for the treatment of tuberculosis.

An intelligent, well trained medical man who is directing the health supervision of a large group of industrial workers, will foresee the early symptoms which lead to organic disease and, by well considered advice, will prevent workmen from succumbing to it.

A well organized health department in a large city is the best investment the city can make. In Milwaukee the city fathers have been generous in support of the health department. It supervises many agencies, which are coordinated with our work. And I cannot speak too highly of our Wisconsin Anti-Tuberculosis Association with its magnificent sanatorium, known as Muirdale. Without charge to employees and with a willing cooperation that is worthy of the highest commendation, they have assisted in the diagnosis of incipient cases of pulmonary tuberculosis and there have been many instances of employees who

have been restored to health through the treatment there given.

It must be recognized that these agencies for health preservation are highly specialized and it is only by a thorough cooperation with such agencies, both in our industrial and public relationship, that the best results can be obtained. It is not a mere accident that the incidence of pneumonia and the Spanish influenza was so low in Milwaukee in the various epidemics. A close personal acquaintance with the head of the health department will convince anyone that preventive measures are followed by definite results. I am speaking to you of Milwaukee, because I am familiar with the local situation here. With the same attention to detail, with the same care in the selection of association physicians, with the same generosity on the part of the manager in providing proper places where men can be treated in groups elsewhere than here, the same results should be attained.

Health and Climate

The climate in Wisconsin is more rugged than elsewhere on account of contact with the great lakes. We have to caution our men about the use of woolen underwear; because with the change of the winds, a perfectly warm day in summer, may take on all the characteristics of Fall weather in less than an hour. I know of no better protection against these changes than the systematic use of the woolen belt. In the Russian-Japanese War, every Japanese soldier was equipped with one of these belts and, by their use in conjunction with the use of boiled water, diarrheal diseases, so common to military camps, were prevented.

An advantage over ordinary and industrial groups may be claimed for the association in that everyone that comes to work, comes as a selected risk. The company endeavors by a preliminary examination to eliminate the derelicts from the organization. With the increase in pay which streetcar employees have been given during the past year, they have acquired a living wage, sufficient to maintain their families in health and comfort. The home hygiene should, therefore, be very greatly raised and with this improvement there must come a corresponding improvement in the general health.

Compensation for Association Doctor

I am convinced that with a miscellaneous population it would be impossible for physicians to care for as large groups as are cared for in our various associations. This enables us to pay a larger fee in the aggregate to our association physician than would be possible in a mixed popula-

tion, not less than 20 per cent of whom would be found below a normal standard.

It is my privilege as the director of the parent association to address these thoughts to you today. We feel that we are pioneers in this great work and we are also persuaded that in undertaking it, we have the support of the greatest organized governmental agencies from the Public Health Service down. We have endeavored at all times to cooperate with these agencies to the fullest extent. Representatives from the various Governmental boards have investigated our work and we have listened to suggestions for its betterment. We realize that with the cooperation of the employees, both individually and through their official representatives, the directors of the association, we have an opportunity for the conservation of health such as is presented to few groups throughout the country.

To Mr. James D. Mortimer, to whom conception of this great plan is due, as well as his earnest support of this congress of the various allied associations, all are under the deepest obligation. We have no excuses to make for our work and no apologies to offer. Its record is open to investigation by all and as the director of the parent organization I can only say we are proud of that record.

CONFERENCE TO DISCUSS HOW MEDICAL SERVICE CAN BE IMPROVED

The medical session of the sixth annual meeting of the International Association of Industrial Accident Board and Commissions, to be held at Toronto, Can., September 23 to 26, will be devoted to a discussion of the subject, "How Can Medical Service Be Improved?"

Dr. F. D. Donoghue, medical adviser to the Massachusetts Industrial Board, will sit as chairman of the morning session. Dr. F. H. Thompson, medical director, Oregon State Industrial Accident Commission, will be chairman at the afternoon meeting.

Those participating in the discussion will be Drs. Donoghue J. W. Trask, chief medical director, United States Employees' Compensation Commission; Dr. Otto P. Geier, director of the employees' service department, Cincinnati Milling Machine Company, and Dr. M. R. Gibbons, medical director of the California Industrial Accident Commission, who will prepare a paper, though possibly will not attend.

The following speakers and subjects are announced in a tentative program for the medical session: "Disabilities as Aggravated by Pre-existing Conditions," Dr. P. B. Magnuson; discussion by Dr. J. W. Mowell, chairman of the Medical Aid Board of the state of Washington, and W. E. Struthers, M.D., chief medical officer, Workmen's Compensation Board of Ontario; "Infections of the Upper Extremities," Dr. P. A. Bendixen, Iowa; "Cancer, With Special Reference to Sarcoma in Its Relationship to Trauma," Dr. Raphael Lewy, chief medical examiner, New York Bureau of Workmen's Compensation; discussion by Dr. P. A. Bendixen, of Iowa. "Eye Injuries," Dr. F. C. Thebilcock, of Toronto.

THE SURGEON IN RELATION TO PUBLIC UTILITIES

BY CHARLES M. HARPSTER, PH.G., M.D., F.A.C.S., TOLEDO, OHIO; CONSULTING CHIEF SURGEON FOR OHIO, HENRY L. DOHERTY COMPANY, NEW YORK CITY

Part II

IN reviewing large numbers of cases in different types of trauma, it is intensely interesting to note the many problems presented. In the many claims against a traction company for injury it is for the surgeon to determine the exact degree of injury, in fairness to the company and without prejudice to the patient; to separate the just claim from those in which rank imposition is planned; to differentiate the psychic from the physical factors; to find means for the most rapid and the most complete possible restoration of the injured. This is no small task, but the statistical



Two views of fixtures and plumbing installation at the first-aid station of the Acme power plant.

study of all records of the medical staff of the Toledo Railways & Light Company has resulted in the fixing of certain standards and interpretations which are interesting in themselves and are published to draw out information as to the accepted procedures of other similar departments.

Head Injuries

In a recent study of 7,500 cases of trauma, based upon all cases treated covering a period of less than five years, it was found that a little less than 2.5 per cent were head injuries, simple scalp wounds not being included in this category. Many of these cases required to be seen but once. From this experience the department has adopted for the handling of cases of fracture at the base of the skull the rules laid down by Bunts:¹

(1) Simple cases of fracture of the base of the skull without severe laceration of the brain; practically all get well without operative interference.

(2) The greatest cause of danger in these cases is from septic meningitis and operation cannot prevent this complication, but rather adds to its probability.

(3) The bad cases, complicated by a bursting fracture of the skull with an extensive laceration of the brain; practically all die.

(4) It is in this class of cases that operations, such as removing spicula of bones, crushed brain, etc., are most frequently resorted to, but usually without avail.

(5) Distinct compression systems coming on immediately after the injury without obvious evidence of extensive brain laceration would probably be deserving of decompression operation, for they might be due to hemorrhage or edema, and should be subjected to immediate operation.

(6) There are insufficient available statistics as yet to show that decompression operations hasten the recovery after fracture of the base, or lessen subsequent liability to cerebral disturbances.

Fracture of the Skull

It is to be noted that in the one case in which Bunts had an opportunity to try out the plan under his fifth postulate operation and subsequent necropsy showed no clot, very slight hemorrhage, but extensive laceration of the brain, not only in the lowest frontal convolution near the site of the fracture, but in the occipital region, far from the fracture, the laceration of the brain was even greater than in the frontal region.

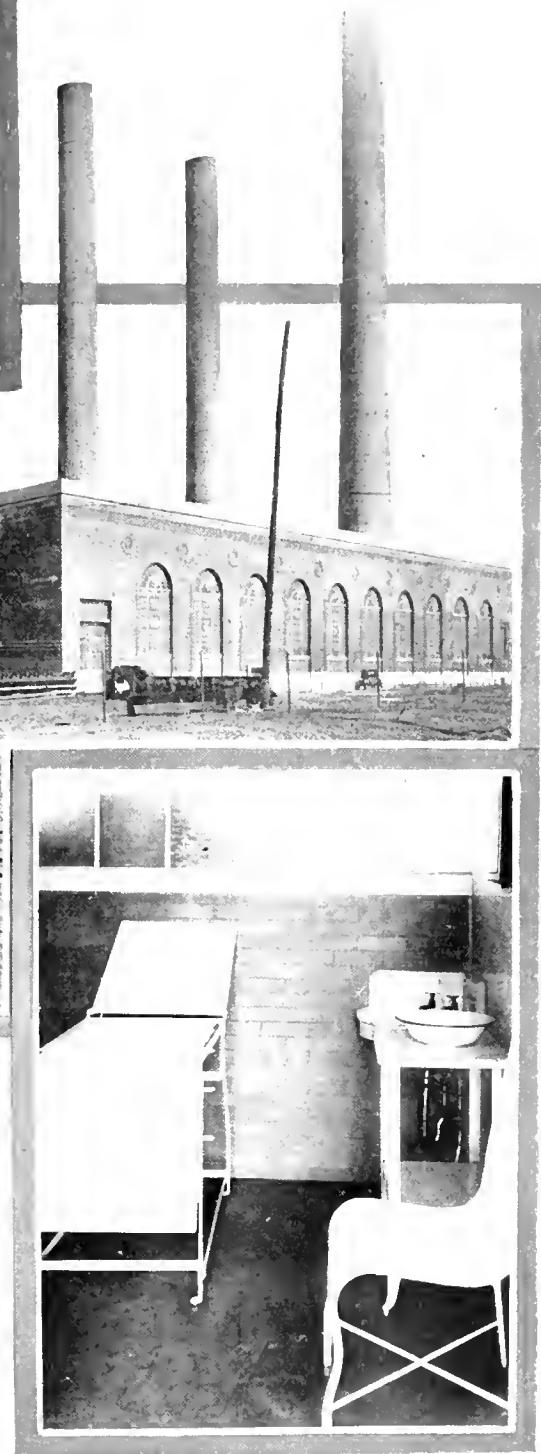
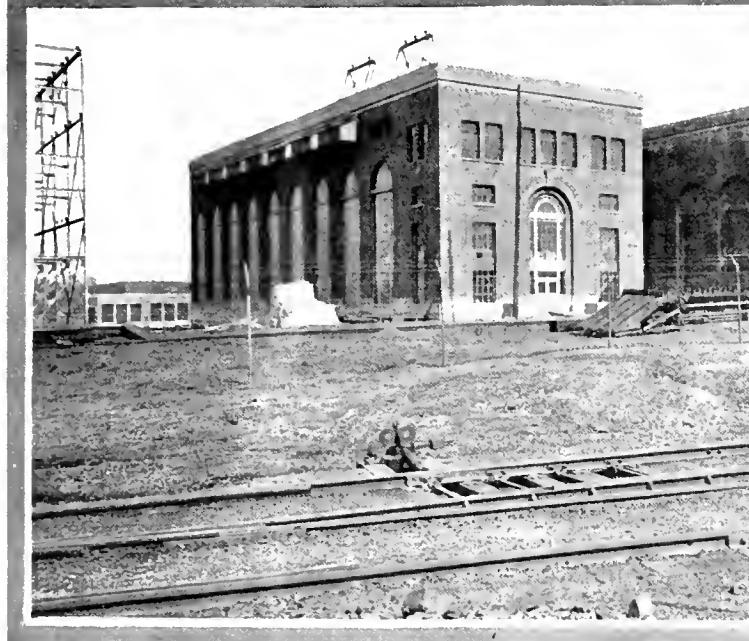
There can be no satisfactory classification of intracranial injuries but it is certain that these injuries should not be regarded purely from the standpoint of fracture of the skull. The x-ray will reveal fractures of the skull in many cases not diagnosed by the clinical findings. The least important condition in injuries of the cranium is the fracture of the skull itself. A patient may get up and walk away after an injury to the head and in some instances may resume ordinary duties and then grow progressively or very rapidly worse, and die.

Subtemporal decompression is greatly advantageous in some cases. The skull is a closed box, the brain cannot expand, and, unless the pressure is relieved, there ensue anemia of the vital centers and death. Decompression gives relief from the pressure by drainage of the cerebrospinal fluid and extravasated blood. It should be employed in selected cases. In cases of basal frac-

¹Bunts, F. E.: Diagnosis and Prognosis in Fractures of the Base of the Skull. Arch. Diagnosis, N. Y., 1917, x, 196-202.



The industrial nurse has taken a place in the modern world of industry beside the industrial surgeon and physician which, by the character of service she performs, secures ever increasing recognition and appreciation from men and employers.



A monument of industry, and one of the members of the personnel that makes up the operating force of this Twentieth Century power station. The power plant is the first unit of the Acme Power Company, Toledo, Ohio. In the smaller building there is an emergency hospital and first-aid station. The upper photograph shows first-aid station and an attendant, a typical portrayal of the modern ideal of medical service for the workers of industry. The lower photograph shows a well-equipped dressing room in the Acme first-aid station. Every public service company of the Doherty system has similar facilities for the maintenance of man power in the plant and in the office.

ture, with free discharge of blood, etc., from ears, nostrils, and mouth, operation *per se* is not indicated. The most vital point in this procedure is that decompression should be done soon after the injury is sustained; the earlier it is done, the better the prognosis.

In this connection it may be well to note that

lacerations of the scalp are often improperly diagnosed, by parties interested, as fractured skull. These cases of supposed fracture are not included in the percentage given of skull injury. Many cases said to be depressed fractured skulls, without any real clinical symptoms, are seen, the diagnosis being based on the subjective symptoms

and on the finding of a natural depression in the skull. Such findings may be well bolstered up by x-ray plates, taken at angles to show best an apparent fracture. In the presence of a depressed fracture of the skull of any consequence, usually the patient is profoundly injured and the clinical symptoms constitute a sufficient guide for diagnosis if they are honestly searched out and understood.

The records of this company report the case of a man who was struck by a car. Notwithstanding the fact that he showed no clinical symptoms whatever, diagnosis of fractured skull was made by parties interested and a trephine operation started. Another case is typical:

Mrs. W., struck by car in April, 1917. She sustained a scalp wound one and one-half inches long on the posterior part of the right side of the head. A very careful and conscientious examination of the skull through the wound was made by one of the assistant surgeons but revealed no depression or any other evidence of skull fracture. Reexamination by the chief surgeon the following day disclosed no clinical symptoms of any moment. The second day following injury, the patient was removed from the hospital by her friends and attorney, and her physician at once found a "large depression of the skull." The fracture was demonstrated by three x-ray plates to the satisfaction of all parties concerned and immediate trephine operation was advised.

An adjustment of her claim was asked for and the case came again under the attention of the medical department. The chief surgeon thoroughly reviewed all findings and gave as his opinion the statement that a fracture did not exist. Two of the plates showed what a strong imagination might construe as a fracture, but these plates were taken at cross fire and the supposed point of supposed fracture was at different places on the two plates. The third plate did not show anything, not even a suspicious point. He advised that operation was unwarranted and that, in view of the indefiniteness of the plate and the absence of clinical symptoms, other plates should be taken. This was done and further plates by other operators were negative. The claim was adjusted and, at last reports, the patient's skull had not been trephined.

The possibility of mistaken diagnosis should always be considered—and the physician should ever be alert for new findings, and open for the re-construction of a case if new data can be obtained. Perhaps the most baffling and troublesome decisions to handle are those in connection with so-called traumatic neurasthenia.

The injury cases of this company have involved the care of many thousands of cases of trauma following accidents on electric railways and allied industries. The conditions, real and assumed,

Form 890 SM-4 11-14

THE TOLEDO RAILWAYS & LIGHT CO
OFFICE OF MEDICAL EXAMINER

TO CLAIM DEPARTMENT

Toledo, Ohio, 19.....

I have this day examined applicant employee

whose place of residence is

Married or single:

Place of Birth Town County State

Date of Birth, Month Day Year

Names and addresses of Parents or Dependents

Occupation Nationality

If unmarried and parents not living, name and address of nearest relative

I find him qualified disqualified for service

Medical Examiner.

The medical examiner furnishes this record of each examination accomplished at the instance of the claim department, and certifies whether the employee is qualified or disqualified for service.

The Acme Power Co.

FORM C D. 113

191.....

Office of Claim Department:

I have this day given treatment to—

Mr. Address

Employed at

Position

Nature of Injury

Where Treated Hospital, Office, House or Shop

Prognosis of Disability weeks days

P.HYSICIAN

The claim department is kept informed of the progress of every patient whose condition is such as to place the company under obligation to pay compensation, or is likely to do so.

following this class of injury are often very unusual. They are on the whole intensely interesting and are entirely different from those encountered in ordinary surgical practice.

FORM NO. 1001

TOLEDO RAILWAYS & LIGHT CO
URINALYSIS

Name,					
Address,					
Date,					
Age					
Sex					
Amount,					
Odor,					
Color,					
Reaction,					
Specific Gravity,					
Albumin, o. 0 1 2 3 4 — Percentage					
Sugar, o. 0 1 2 3 4 — Percentage					
Iodoian,	Mucus,				
Acetone,	Cylinders,				
Acetic Acid,	Cast,				
Urates,	Epithelium,				
Hyaline Casts,	Spermatozoa,				
Granular Casts,	Prostatic Concretions,				
Blood,	Kidney Cells,				
Bile,	Bladder Cells,				
Pus,	Ureteral Cells,				
Crystals,	Vaginal Cells,				
Chlorides,	Bacteria,				
Urobilin,					
Sulphates,					
Phosphates,					
Other Structures,					
Remarks					
<hr/>					
o. Negative	Self Explanatory	1 Slight Trace	2 Decided Trace	3 Small Amount	4 Large Amount

The form on which urinalyses are recorded.

The Acme Power Co.

FORM C D 114

191

To Office Claim Department:

I have this day discharged and certify that he is able to return to work

Mr. Address

Employed at

Position

Nature of Injury

Date of First Treatment

Date of Final Treatment

Length of Disability

After Final Treatment

PHYSICIAN

Date Received by Claim Department

This discharge should be given by Physician to employee, who must at once report to Claim Department and deliver same.

Supplementing the form used by the Doherty physicians for notifying the claim department of the progress of a case, this form is used to inform that department when the patient's recovery is complete.

In a large majority of these cases the money to be received for damages seems to outweigh every other consideration on the part of the patient, his relatives, and his lawyers. A case in point is shown by the remarkable fact that in a certain settlement of our city, practically every married woman between the ages of fifteen and seventy who has been in a streetcar accident has had a miscarriage following such accident.

A few of the conditions that are usually attributed to an accident on transportation lines are enumerated: neurasthenia; goiter; varicose veins; floating kidneys, spleens, and livers; hydrocele; uterine fibroids; pus tubes; prolapsed and floating wombs; spinal curvatures; varicocele; rheumatism; and tuberculosis of the lungs and kidneys. Many other conditions too numerous to mention are a matter of record. As an example of what public service corporations have to contend with: a woman accidentally shot her husband in the head, and he was dead when the chief surgeon reached the hospital. She filed a claim for damage for his death. She had killed him while he was at work and, according to her reasoning, she was entitled to compensation for his death.

Floating Kidney

It is not only real or imaginary injury for which claim is made. It is only too common that physical defects are tolerated with equanimity, or may even be unsuspected, until examination after an injury brings to light the inherent defect which is either a predisposing cause for a real injury, the basis of an unjust claim that the defect was caused by the accident, or sufficient grounds

for the play of the fears of the disturbed psyche.

Perhaps the most frequently involved organ in this category and one that calls for discriminating decision, is the floating kidney. In spite of the fact that Guiteras and other reputable surgeons state that they have never seen floating kidney or other floating abdominal organs due to trauma *per se*, numerous claims are made for such conditions.

The records of this company show only one case of floating kidney thought to be due to

trauma. This was in a young man who fell into a pit, striking on his side on a board or scantling. Extreme prostration followed and considerable blood appeared in the urine. He was profoundly sick at the hospital for weeks. Several weeks following the accident his right kidney was found freely movable. He was given accident credit for the condition. Guiteras² says:

I feel that the claim that sudden traumatism causes movable kidney—such as a blow in the loins, a fall upon the knees, buttocks, or perineum, a blow on the thorax, a sudden muscular strain due to abrupt stopping of a car, and other claims of similar nature which are used in suing corporations and railway companies is groundless.

In all such cases if the traumatism had been sufficient to displace the kidneys suddenly, it would give rise to a dangerous hemorrhage, perhaps sudden death.

It is really the traumatism of mild character that causes the trouble, as has . . . been mentioned under corset and belt pressure. I believe that persons who suddenly complain of pain in the loin after a shock, a car accident, or jar, and in whom a movable kidney is found on examination, would have shown the presence of such a condition had they been examined before the accident; but as there was no reason for such an examination, the presence of a movable kidney was not known. On the other hand, when a movable kidney exists, a sudden jar or wrench may give rise to renal strangulation, and thus bring on symptoms that might induce one to believe the mobility has been caused by the recent traumatism.

Goiter is another condition claimed to result from injury. Drysdale³ reports cases of alleged

² Guiteras, Urology, Vol. 1, p. 406. D. Appleton & Co., New York, 1912.

³ Drysdale, H. H.: Medico-Legal Significance of Trauma in Goiter, Ohio State Med. Jour., 1917, xiii, 310.

REPORT OF SURGEON

1 Name of injured person	.....	Residence		
2 Previous residence .....	.....		
3 Nationality .....	.....	Age.. ....	.....	Married or Single
4 Occupation .....	.....	.....	.....	By whom employed
5 Date of accident.....	.....	19.....	.....	Place
6 Date first seen by a surgeon .....	.....	19.....	.....	Where
7 Pulse	Temperature	Weight .....	.....	Previous weight.....
8 Insurance .....	.....	.....	.....	.....
9 Describe fully the nature and extent of injury received.....	.....	.....	.....	.....

10 Could the symptoms be due solely to this accident?.....If not, are they traceable to any previous accident, or any other cause, and if so, what?

11 Is the injury (independent of all other causes) such as to wholly disable and prevent him from attending to the duties of his occupation?

12 Where was the injured person sent or taken after the accident?

13 In your judgment is the accident attributable directly or indirectly to any bodily disease, infirmity or deformity, and will the disability be lengthened thereby?

14 Is there any reason to believe that the accident happened in consequence of the person being under the influence of intoxicating liquors or narcotics?

15 Chief existing physical complaint is

16 What is your prognosis of disability? (from date of accident)

17 Has injured person resumed work?

18 Name of attending surgeon

19 Name of surgeon rendering first aid

20 State fully effects of injury and probable results

21 Has or will injury result in permanent disability?

(over)

traumatic goiter with reference to the medico-legal significance of trauma as an etiologic factor and, after citing numerous theories, sums up his conclusions as follows:

I may say that a painstaking analysis of seventeen cases of Basedow's disease, alleged to have been caused by trauma, shows quite conclusively that the condition must have for its development suitable soil, and without,

22 Statement made by injured person as to the cause of accident

23 Nerve reflexes

24 Condition of heart

25 Condition of lungs

26 Condition of teeth

27 Condition of sight

28 Condition of hearing

29 Condition of kidneys

30 Condition of liver

31 Is there evidence of syphilis?

Gonorrhœa?

Tuberculosis?

Alcoholism?

Neurasthenia?

Hysteria?

Obesity?

Pregnancy?

Goitre?

Hernia?

Rheumatism?

Varicosed veins?

Malingering?

Exaggeration?

Varicocele?

Hydrocele?

32 General Appearance

33 Remarks

34 Present at examination

Dated at this day of 19

Surgeon.

an exophthalmic goiter cannot occur. In other words, there must be an inherent predisposition to the malady. It is also my opinion that the degree of physical violence has little, if any, significance and whatever harm is done in this respect arises from shock and emotional storms acting through an unstable nervous and psychic constitution. Trauma, therefore, becomes only a determining factor.

Form No. 891

TOLEDO RAILWAYS & LIGHT CO.				
BLOOD EXAMINATION REPORT				
DATE	LABORATORY NO.			
PATIENT'S NAME AND NUMBER				
Red blood corpuscles per cb. mm.	.....		
White blood corpuscles per cb. mm.	.....		
Haemoglobin percentage	.....		
Color index	.....		
Blood urea percentage	.....		
Blood sugar percentage	.....		
N	S. M.	L. M.	Eos.	Mast.
Differential white count	1 plus	2 plus	3 plus	4 plus
Wasserman	.....		
Widal	.....		
Abderhalden test for	.....		
Miscellaneous	.....		
To Dr C. M. Harpster	Pathologist			

The form in use by the Doherty medical departments for reports of blood examinations. In the various affiliated corporations, the different forms are adapted to local requirements, but are identical in most particulars.

This, I think, will adequately explain why so few cases develop following physical violence, and why so many of the ordinary cases arise from influences which are in no manner related to traumatism.

No case of goiter that by any gymnastics of the mind could be traced to trauma is recorded by the Rail-Light Company.

Traumatic Neurasthenia

This nightmare is comparable to that ancient monstrosity that Erichson¹ dubbed the "railway spine." The term neurasthenia has made fortunes for numerous members of the legal profession. The prognosis of "legal neurosis" or the "litigation neurosis" of Miller² often varies inversely from the time of settlement of the individual's claim for damages. Many cases recover spontaneously as soon as the money for damages has been paid over. In hundreds of cases of so-called traumatic neurasthenia none of the persons traced failed eventually to resume his ordinary vocation after a satisfactory settlement of the claim.

After a complete revision of the symptoms of hysteria and neurasthenia, Babinski³ showed that most of the symptoms are due to medical, legal, or other suggestion. Society people willingly and cheerfully dub themselves neurasthenic although wealthy society ladies never have the traumatic form of the condition. The term is also employed to cover diseases the patient is not anxious to make public, such as certain psychopathies. Doctors themselves have contributed in no small measure to popularize the condition and the use of this term by the public. As Dejerine⁴ and Gauckler remark, physicians tax their patients with neurasthenia and then tell them that their troubles are nervous.

Beard⁵ and Charcot imagined that they were describing a definite disease. As a matter of fact, the malady is characterized by well marked symptoms. Neurasthenic headache, digestive disturbances, rachialgia, amyostenia, insomnia, etc., constitute the most distinctive features. Along with these are found many secondary symptoms. A distinct, morbid entity could be extracted from this group of manifestations. The majority of the symptoms are emotive phenomena. Even neurasthenia itself tends to become blurred and, according to Beard and Charcot, out of 300 patients examined and declared to be neurasthenic, not one presented the signs formerly attributed to this neurosis.

In the neurasthenic subject fatigue, depression, fatigability are characteristic, but these are wholly inadequate of themselves to create a morbid entity which, moreover, possesses no anatomical features of its own. Almost nothing specific is found in the etiological conditions nor is it possible under the condition to give any pathologic definition.

¹ Erichsen, Sir John E.: *The Science and Art of Surgery*, H. C. Lea's Son & Co., Phila., 1884-1885.

² Miller, L. R.: *Hysteria of Alleged Traumatic Type*, Jour. Tenn. Med. Assn., Nashville, 1917, ix, 363.

³ Babinski's Neurology.

⁴ Dejerine, J. J., and Gauckler, E.: *The Psychoneuroses and Their Treatment by Psycho-Therapy*, Authorized Translation by Smith Ely Jelliffe, J. B. Lippincott Co., Phila., 1913.

⁵ Beard and Charcot: *Le Monde méd.*, 1917.

According to Dejerine neurasthenia is little more or less than a polyvalent syndrome. As a rule, when the doctor says neurasthenia he has in mind certain unexplained but not necessarily inexplicable troubles. It often happens, indeed, that on following up the study of the neurasthenic symptoms they are found to be connected with some morbid process in evolution, or to a lesion of some kind. Professor Legueu^a recently showed this to be the case in respect to certain ill defined urinary disturbances described as neuropathic or neurasthenic. If, given a case of neurasthenia, each manifestation is taken separately and its etiology and development investigated, each symptom is referable to one special pathological process not strictly speaking in the domain of neurasthenia. Dejerine and his pupil, Gauckler, have endeavored to define exactly the origin of the disease in the 300 persons they describe as neurasthenic; 103 were originally mental subjects; 121 were organic, and in 76 the affection supervened under the influence of emotive states. Suggestion is a common source of neurasthenia. The majority of their cases (121) were dependent upon ill-defined organic affections; for instance, in 3 per cent of these patients thyroid troubles were at the root of the neurasthenia. In others malaria had been at work, or grave enteritis, tuberculosis, arteriosclerosis, etc.

A goodly group was made up of debilitated subjects, the psychically unadapted, as Dejerine calls them. These subjects are healthy and their organs are intact, but they lack physical energy and break down on the least exertion. Closely allied to this category are patients who are, so to speak, wound up for some trifling task, but they are unable to stand their ground directly they are subjected to a little extra strain. The fatigue which they experience is, in them, a factor in the production of neurasthenia.

An organic affection, even if trifling and devoid of pathologic significance, will set up in the neurasthenic violent local reactions radiating out of all proportion to the producing cause. Similar lesions are not equally well borne by subjects of healthy constitution and neuropathic temperament. For instance, two patients may be suffering in the same degree from asthenia and extreme depression and may be unable to walk. One has cancer of the liver, the other merely floating kidney. A young woman suffers from intense neurasthenia with pain in the region of the heart, but careful examination reveals in her a periostitis of the fifth rib.

Emotional causes are often at the root of these

neurasthenic disturbances. It is more the duration of the emotional trouble than its intensity that weighs in determining the genesis of morbid phenomena. These patients might be labelled "moral unadaptables," they display such a disproportion between their mode of life and their constitutional aptitudes.

No one would venture to advocate that these various categories can be included in the same morbid group, and neurasthenia must be regarded in a very different manner. It may possibly retain its place in neurology, but its field must be limited and certain eliminations must be established. To begin with, all asthenics are not neurasthenics. Those who present troubles of thyroid or suprarenal origin are only accidental neurasthenics. Hepatic subjects must also be eliminated as well as the debilitated, and those suffering from melancholia, hypochondria, or psychasthenia.

Speaking generally, emotion is accorded a much too modest influence in works on pathology, yet it is universally admitted that emotions may cause functional disturbances throughout the economy. The functions of nutrition are under the immediate control of the functions of relation, and those are comprised in the much more general function of adaptation and this is disturbed by the emotions in a more or less durable or fugitive manner.

The neurasthenic state is nothing more than the totality of the constitutional or particular disturbances resulting from the emotional state acting on a given soil, and the various mechanisms by which a patient is rendered neurasthenic act as simple emotional causes. The inability to adjust the mechanism to an intense emotion, whatever the cause, represents an intrinsic inferiority and the consequent symptoms of depression, fatigue, and exhaustion may be summed up as neurasthenia. Mental, organic, or emotional causes may induce the condition, the last named preponderating. That all organic causes do not have this result is due to the fact that they often occur in ill adapted subjects and manifest themselves only on definite neuropathic soils. Our conception of neurasthenia should be limited to the totality of the disturbances which arise from the permanent action of emotional states.

From the records of this company one case may be cited to show how the condition may be abused:

A woman, 38 years of age, of emotional nature and disposition accidentally fell from the step of a motionless street car. She was immediately taken to the hospital where thorough examination failed to reveal any signs of physical or organic lesion. She threw herself into muscular contractions and fits. There was anesthesia of the skin in places, hyperesthesia in others, and there were

^a Legueu, Félix: *Le Rien Mobile*. J. B. Baillière et fils, Paris, 1906

functional disturbances too numerous to mention. Left after several days, dissatisfied with the treatment received in the hospital, with her nurse, her bed, her diet, her physician. Went to bed at home and on the suggestion of friends and lawyers stayed there for months. Trial of her case defeated her claims. No appeal was made. Immediate recovery followed, the case being one of hysterical and emotional neurosis—neurasthenia, if you please—with the gold-releasing word, traumatic, superimposed.

A rather interesting observation in this connection may be cited in the fact that 99 per cent of shell-shocked American soldiers have recovered.¹⁰ "There is less insanity in the American army than in any of the other allied armies," says Colonel Salmon. This recovery of so high a percentage of men from shell shock, Colonel Salmon attributes to the high standard of physical examination required for all soldiers going abroad.

INDUSTRIAL MEDICAL SERVICE*

The diverse influence exercised upon the health of the adult community by industrial environment is a matter calling for immediate action. The facts are so well known that attention need only be drawn to the much heavier mortality experienced by males in industrial districts than by females; while in country districts the mortality experienced by the two classes is only moderately against the male. The present organization of public health work makes no attack on this serious state of affairs; concerned as it has been, and is, with such things as water supply, insanitary dwellings, sewage disposal, and food supply—all matters of undoubted importance to which the health of the community has reacted—it has not established personal touch with the individual. In this respect preventive medicine has differed from curative medicine, which brings the practitioner into close contact with his patient. The result has been that with regard to preventive medicine the public has cared for none of these things; and advance must be slow until the public does care and appreciates that the health of each individual is not merely a personal matter, but one which acts upon, and reacts to, the health of the community. This will not occur until the profession establishes personal touch on health matters with the individual. Recent developments are, however, tending thitherwards: maternity and child welfare centers now deal directly with mother and infant, and the school medical officer deals with the individual child. Still, the personal well being of the adult is left uncared for. How is the profession to establish contact? One way has been pointed out by Dr. H. G. P. Castellain in a recent letter to the *Times* (London), advocating the employment of trained industrial medical men as full-time or part-time salaried officers in factories. The gathering together of workers in industrial establishments forms groups of persons exposed to similar risks and to similar environment which may be unfavorable. Here their health can be supervised from the moment of engagement throughout industrial life as readily as that of children in a school. Personal contact can be established just where it is most likely to be valued by improving the conditions of labor and easing the toil of daily life; and influence can be directed upon what is recognized to be the darkest spot in the health of the community,

and upon the environment that renders it so dark. Dr. Castellain sets out at some length the multifarious duties which a factory medical officer should undertake, and rightly concludes that there are but few medical men capable of discharging them. He then puts forward the proposal that a Diploma of Industrial Medicine should be instituted as distinct from a Diploma of Public Health. The field of preventive medicine is certainly wide enough to-day to justify action on these lines, but unless a demand is created on the one side and a supply to meet it on the other it will continue to exist unmet. A policy of delay to see whether some government department will some day do something does not recommend itself to us. The Association of Certifying Factory Surgeons should take the matter up with the new trades councils on the one hand, point out to them the advantages, economic and social, of industrial medical service, and get them to give preference to trained men; while, on the other, the members should themselves arrange for and attend post-graduate courses and so qualify themselves to meet the demand thus created for industrial medical officers. Once sure in this way of their students the schools would willingly arrange instruction. The Association has been calling for years for help from others; here, to-day, is a better way in which they can help themselves and benefit the community.

G. F. SHERIDAN RESIGNS FROM OHIO ASSOCIATION TO BECOME EDITOR

Mr. George B. Sheridan, executive secretary of the Ohio State Medical Association, has resigned to accept the editorship of the Springfield, Ohio, *Daily Sun*.

Mr. Sheridan has served as the executive secretary of the Ohio State Medical Association for six years and has developed a plan of organization which is unique in this country for medical associations.

As a result of his organization work there is probably no state in the union in which the medical profession is as well organized as in Ohio.

The work which Mr. Sheridan has done gives special point to the conclusions reached by him as a result of his six years' experience, which is published in the July issue of the *Ohio State Medical Journal*.

As a layman he does not concern himself with the scientific side of medicine but to organization for the promotion of the public health and the good of the profession.

Briefly summarizing the subjects which he considers of special importance to physicians are:

(1) Protection of the sick public from the ignorant and the crooked.

(2) Protection of the profession against legal shysters who in the past have found the average busy physician to be easy prey for blackmail.

(3) The maintenance of educational standards for undergraduates and the continued scientific improvement of members after graduation.

(4) Protection of the profession from petty persecutions and useless or unfair restrictions, which usually are concocted by half-baked reformers or hostile opponents.

(5) Organized support for intelligent and scientific public health administration.

(6) Maintenance of fee schedules which will make it possible for physicians to render adequate service.

(7) Maintenance of permanent organization framework which will be available for quick mobilization of medical resources in times of local, state or national need.

¹⁰ Colonel Thomas Salmon: Toledo Times, 1919.

*Editorial from *The Lancet*, vol. i, 1919, No. xxv.

AN INDUSTRIAL MEDICAL SERVICE THAT KEEPS 12,000 WORKERS FIT

In both the curative and preventive departments of industrial medicine, The Colorado Fuel and Iron Company, with twelve thousand men employed in its twenty-odd coal and iron mines in Colorado and Wyoming and in the Minnequa Steel Works, Pueblo, Colorado, has adopted advanced standards.



This pretty dental nurse visits the mining towns and instructs the kiddies in the use of the tooth brush.

The service of industrial medicine and surgery in healing the sick and restoring the injured is important indeed, but much more so is its service in preventing disease, teaching hygienic living, and keeping the worker and his family physically fit.

The company's medical department was founded almost simultaneously with the beginning of its operations nearly forty years ago. The department has its headquarters in the Minnequa Hospital, Pueblo. This institution for years has been accorded merited recognition as one of the most advanced industrial hospitals in the United States. The staff of surgeons at the hospital is supplemented by the services of physicians in the various mining towns. Adjacent to the steel works at Pueblo is a dispensary for the treatment of minor illness and injuries. The company has inaugurated a program of building dispensaries or emergency hospitals at the mining properties. Two of these already completed, one at the coal camp at Primero and

the other at the iron property at Sunrise, Wyoming, were donated to the people of the camps by John D. Rockefeller, Junior.

At the steel works and at several of the mining towns, visiting nurses are employed. These nurses care for ill and injured men in case of emergency, but their principal function is in teaching the principles of hygienic living and housekeeping according to American standards to the wives and families of the miners. Within the past year the company has cooperated with the counties where its mines are located in employing public health nurses under the supervision of the American Red Cross.

For the benefit which he and his family derive from the medical service, each employee pays one dollar per month. The fund thus raised is supplemented by appropriations from the company. Employees are entitled to hospital treatment in case of injury or serious illness and to medical service at their homes. In the case of workmen living at the mining camps, free medical attention is also extended to their families. Hospital treatment is not furnished to families of employees free of charge, but a reduction from regular rates is made for their benefit.

More than two years ago a decided innovation was inaugurated in the shape of free dental and optical service



The dispensary maintained by the Colorado Fuel and Iron Company at the iron mining town of Sunrise, Wyo.

for the children of employees. Oculists and dentists visit the public schools in the mining towns and the schools adjacent to the steel works and examine the eyes and teeth of the children, beginning with those in the lowest grades. The teeth are cleaned and, when it is necessary, fillings are put in. The eyes are examined and the children's parents advised if further attention is needed. No charge is made for the dental and optical service. Glasses when prescribed by the oculist are not furnished free, but are purchased by the company at a wholesale price and supplied to the children at cost.

The beneficial effects of the dental and optical service to the children became apparent almost at once. Results in numerous cases have amply confirmed the modern belief that much ill health and even some apparent defective mentality in childhood are due to infected teeth or sub-normal eyesight. With continuous attention given the children year after year, it is confidently expected that the good results will become even more noticeable.

In the autumn of 1915 the company and its employees mutually adopted the industrial representation plan for the government of their relations with each other. This industrial constitution, which has been notably successful in removing causes of friction and harmonizing the interests of employer and employee, provides among other things for joint committees on industrial relations. There



The visiting nurse makes a call at the home of an employee of the Colorado Fuel and Iron Company.

are four of these committees in each of the mining districts and at the Minnequa Steel Works. Of these four, one is designated as the "joint committee on sanitation, health, and housing." Within the jurisdiction of this committee falls the general supervision of health and housing conditions. It cooperates with the medical department and the company management in initiating and carrying out whatever improvements seem desirable.

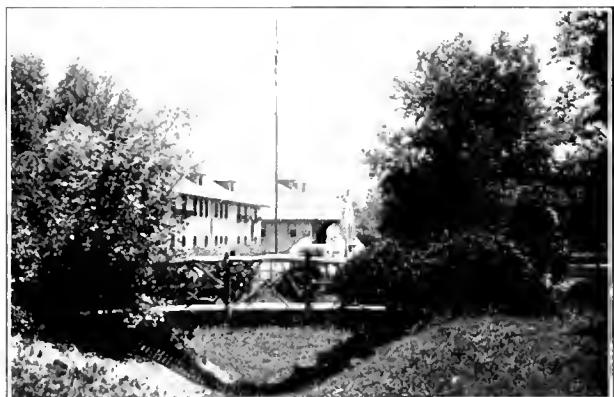


Main entrance to the grounds of the Minnequa Hospital of the Colorado Fuel and Iron Company, at Pueblo, Colo.

The services of the various committees on sanitation, health, and housing have been valuable beyond computation. Particularly in the mining camps these committees have made periodical inspections, minutely examining everything that has a bearing upon the health and com-

fort of the employees and their families. As a result of these inspections numerous recommendations have been made, practically all of which have been promptly acted upon by the management.

The Colorado Fuel and Iron Company believes that the health or illness of an employee generally begins at home. It has therefore given much thought to the providing of modern and sanitary dwellings for its workmen. Standards of housing have been constantly improved. In recent years, as the increased earning power of the work-



A wide expanse of lawn and trees, plenty of sunshine and fresh air, and the Colorado climate give a rare charm to the Minnequa Hospital.

men and their rising ideals of home life have created a demand for even better dwellings, many houses with modern conveniences have been erected at the various properties. The workmen and their families have in the main been found appreciative of the better living facilities provided.

NEW SANITARY CODE FOR RAILROADS

A revision of sanitary rules and regulations is being completed by the Committee on Health and Medical Relief of the United States Railroad Administration, with a view to providing a standard code of regulations for railroad stations, shops, trains, and other properties in all states.

Dr. D. Z. Dunott, chairman of the committee, prepared a paper recently which embodies several of the important conclusions agreed upon by the committee. This paper, which was read at the conference of State and Territorial Health Authorities with the United States Public Health Service, is printed in *Public Health Reports*, July 4, 1919.

The committee offers the following comment:

"The water-closets in railway stations through the country, with but few exceptions, are maintained in a very insanitary manner. At times they are actually filthy and transgress all rules of decency. The washing facilities are not much better. In some stations arrangements are made for a pay service, and when this is the case cleanliness is the rule."

"In large cities the fixtures are in such constant use that it is difficult to find time for cleaning, even when a disposition to that end is shown. In view of the fact that these facilities are used more by the nontraveling public than by the patrons of the railroads, the question naturally arises whether it is quite fair to throw the entire burden of their installation and maintenance upon the railroad companies."

"For the sake of common decency the lack of public toilets should receive early attention. America is the only modern country that throws the burden of providing toilets upon private initiative."



The laundry on the grounds of the Minnequa Hospital lends a delightful aspect to the architectural background.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C. E. A. WINSLOW, DR. P. H., *Editor*

NOTABLE ADVANCES IN PUBLIC HEALTH ADMINISTRATION

IT HAS long been clear that the most serious obstacle to the development of public health work is the lack of trained local health officers; and that it is quite impossible to obtain such trained officials for small rural or semi-rural population groups. The obvious remedy for this condition is the creation of administrative sanitary units larger than the individual town or village, large enough to employ a competent full-time health officer, with the staff necessary for efficient public health work along modern lines. Such a staff, to serve a population of 16,000, must include at the very least a public health nurse and a sanitary inspector in addition to the health officer; and should demand an annual budget of not less than \$5,000.

In the South the problem of effective rural health administration has been largely solved by the development of county health organizations, but in the North the county is a highly artificial political unit which generally escapes the public scrutiny necessary to keep it free from political graft and incapacity. The creation of cooperative sanitary organizations representing adjacent towns and villages has therefore seemed the most promising course in the northern states. New York has for some years had on its statute books a law permitting such consolidations, and has made substantial progress in reducing the number of local health officers within the state, which a short time ago reached the absurd total of 1,200. In 1918 a special act of the legislature (Chapter 174, Acts of 1918) created the Lake George Health District, comprising parts of eight towns and villages to be administered by a board of health of three members elected by the supervisors of the towns and the presidents of the villages concerned. This District has a health appropriation amounting to \$2 per capita, and has already become a model of rural sanitary administration.

A general extension of the principle of consolidation of health districts in the state of New York is provided for in a more recent amendment of the section of the public health law dealing with local boards of health (Chapter 423, Acts of 1919). On the request of the authorities of any towns, villages, or cities the state Commissioner of Health may create a consolidated district to be administered by an unpaid board of health of from three to seven members composed either of the regular officials at the head of the various areas concerned or of special delegates elected by them. Under the general provision of the Act the health officer to be appointed must be a physician who has received the degree of Doctor of Public Health, or "who has completed a course in public health approved by the public health council at the time of his appointment." He serves for four years and cannot be removed from office without the approval of the state Commissioner of Health.

The most important section of this Act is the paragraph dealing with finances, which places at the disposal of the board of health of the consolidated unit an appropriation unlimited except by the public opinion of the electorate which retains its members in office. "The board of health of any consolidated district," in the words of the Act, "may annually make an estimate of the expenses of such board for the ensuing calendar year and, if such district be wholly in one county, shall deliver a certified copy of such estimate to the clerk of the board of supervisors of such county prior to the annual meeting of the board preceding such year. If such consolidated health district be located in more than one county, the board of health of such district shall proportion the total amount of such estimate in the same manner as provided by this section for proportioning the expenses of such a district when audited and approved by the board, and shall deliver to the clerk of the board of supervisors of each county a certified statement of the total estimate and the amount due from the real and personal

property of each town, village, or city of the consolidated health district in each such county on account thereof. The board of supervisors of each such county shall levy a tax upon the real and personal property within such health district sufficient to provide for the portion of the amount of such estimate chargeable to the real and personal property of each town, village, or city of the consolidated health district in each such county. Such sums, when collected and paid to the county treasurer of each county, respectively, shall be paid by him to the president of such board of health and shall be disbursed by the board of health in accordance with the estimates."

This New York law, while merely permissive, makes it possible for any group of communities to develop an entirely modern and effective health service. The Hughes Health District Act,¹ passed this year in Ohio, goes even further and requires the establishment of well equipped health units throughout the state. It is perhaps the most notable step yet taken in America for the creation of administrative machinery for the protection of the public health.

The situation in Ohio has been worse in the past than that in New York since more than 2,100 independent health jurisdictions have existed within the state. According to the *American Journal of Public Health*, the average remuneration for a township health officer has been about \$25 a year. The Hughes law creates a chain of local health districts corresponding to cities of 25,000 population or over (municipal health districts), or to rural areas outside of such cities (general health district). Each general district is administered by an unpaid board of health including one farmer, two physicians, and one lawyer. Each district, either municipal or general, must employ a full-time health officer with at least one nurse and one clerk, all officers being appointed under state civil service; and the state subsidizes each district up to a maximum of \$2,000. Appropriations are insured by the fact that public health expenditures are made a second lien on the revenue of the townships and municipalities included in each district following immediately after public debt charges. The working out of the Ohio law will call for the appointment of 110 full-time health officers "with permanent tenure of office under civil service" with salaries ranging from \$2,000 to \$6,000 per year.

Adequate powers, adequate appropriations, and the trained men to use them are the three essentials of successful health organization. Authority and funds will now be available throughout the

state of Ohio, and in New York wherever local sentiment awakens to the opportunity offered by the public health law. The only question now is,—how soon can the trained men and women be found, competent to direct the machinery created by this far sighted legislation?

Adenoids Handicap One Child in Ten

The United States Public Health Service has prepared a booklet on "Adenoids" in which it is stated that more than 10 per cent of the children of the country are handicapped with adenoids. The booklet is offered for distribution to parents, school authorities, and welfare workers. Failure of parents to have the physical defects of children attended to during infancy or early childhood is ascribed as one of the chief causes of the frequent occurrence of the trouble.

MOTOR CLINIC AIDS CHILD WELFARE

The campaign for better babies will be carried into rural communities with the aid of a traveling motor clinic which has been put into service by the Children's Bureau of the United States Department of Labor. Physicians and nurses will be in charge to conduct examinations of babies and advise mothers everywhere of how to be sure of the best care and treatment for their little ones.



Interior of the "Child Welfare Special," a traveling motor clinic which the Federal Children's Bureau is sending into rural communities to spread the message of the "Better Babies" movement among the mothers on the farms.

¹ House Bill No. 211 (Ohio). This Act will be published in part in a later issue of MODERN MEDICINE.

A CRITICAL SURVEY OF PUBLIC HEALTH TOPICS

- I. Is the Visiting Nurse a Public Health Nurse?
- II. Typhoid Vaccine and the Control of Typhoid Fever.
- III. Railroads and the Public Health.
- IV. Narcotic Drug Addiction—A Public Health Problem.

A REVIEW OF CURRENT LITERATURE AND COMMENT

I—IS THE VISITING NURSE A PUBLIC HEALTH NURSE?

BOTH sides of the question "Is the visiting nurse a public health nurse?" are very ably presented in articles by Dr. H. W. Hill, executive secretary of the Minnesota Public Health Association and Miss Annie M. Brainard, editor of *Public Health Nurse*, in the July issue of that publication.

Doctor Hill answers this question in the negative, and gives as his reasons that the distinctive feature of the service offered by the visiting nurse is concerned directly with therapeutics, that only a small proportion of her time is devoted to instruction other than that which is really therapeutic in character. The public health nurse devotes her time chiefly to the discovery of dangerous conditions, and the taking of and giving instructions in the precautions required to offset the danger. The distinction between the visiting nurse and public health nurse is similar to that which is recognized between the work of the physician and the work of the health officer.

Miss Brainard, on the other hand, contends that a visiting nurse is a public health nurse and offers the historic reason that originally the term "visiting nurse service" included health nursing other than bedside care. Furthermore, she states that three-fourths of the work of a visiting nurse consists in teaching the fundamental principles of public health. A public health nurse may not be a visiting nurse, but a visiting nurse is, and cannot help being a public health nurse. J. S.

II—TYPHOID VACCINE AND CONTROL OF TYPHOID FEVER

THE value of vaccine in controlling the prevalence of typhoid fever, especially in conjunction with certain sanitary measures, is discussed in the *Weekly Bulletin*.¹ If vaccination had not been carried on among the 2,000,000 members of the American Expeditionary Forces, and had the

same rate of infection prevailed as in the Spanish American War, we would have had in this army the appalling numbers of 384,113 cases and 29,266 deaths from typhoid fever. This is a great contrast with the experience of our present army among which not over 500 to 1,000 cases of typhoid fever have developed. In these cases infection resulted in spite of vaccination but only where the degree of exposure was high. Typhoid vaccination is not an excuse for lavity in sanitation, and protection can be broken down by exposure to continuous and large amounts of infectious material.

Sanitation alone, however, will never completely eradicate typhoid fever, because of the residual amount of typhoid fever due to personal contact with cases and with carriers. "Universal typhoid vaccination combined with a feasible degree of sanitary control would yield far better results and cost the community less than the most ideal sanitary system that could be devised. Vaccination would then reach its highest effectiveness because of the coincident protection from gross sources of infection."

The popularizing of typhoid vaccination is urged with the added value that every forty cases of typhoid fever prevented means one carrier prevented.

J. S.

III—RAILROADS AND THE PUBLIC HEALTH

THE effect of the railroads on the health of the country has been the subject for careful study on the part of the Committee on Health and Medical Relief, of the United States Railroad Administration, and some of the findings presented to the recent conference of state and territorial health officers are given in *Public Health Reports*.²

The embankments used in railroad construction often impede the natural flow of water and the

¹ Weekly Bulletin of the Department of Health, City of New York, July 19, 1919.

² Public Health Reports, 1919, xxxiv, No. 27.

formation of pools has resulted in excellent breeding places for mosquitoes. This has led the Committee to believe that the railroads are in part responsible for the continuance of malaria.

Hookworm, typhoid fever, and smallpox are prevalent in the South and the railroads as large employers of man-power draw their labor chiefly from the communities through which they pass. It is the desire of the Railroad Administration to cooperate with state and local health authorities in controlling these preventable diseases.

The sanitation of water closets in railway stations and on passenger cars is also receiving the attention of the Committee. The practically constant use of these facilities by careless and indifferent individuals makes it very difficult to correct the present unsatisfactory conditions.

The display of health posters in railway stations to further the health educational campaign can be arranged for if a standard card, neat in appearance, is prepared. In the past such permission has been withheld.

As an employer of nearly 2,000,000 persons, the United States Railroad Administration is vitally interested in all measures aiming to improve the public health. Its special health committee is particularly anxious to devise methods for reducing the vast army of injured, which totaled 194,000 persons for 1917.

J. S.

IV—NARCOTIC DRUG ADDICTION—A PUBLIC HEALTH PROBLEM

A MORE sane and scientific attitude on the part of physicians and public health workers toward the narcotic drug addict is urged in a very forceful and thorough manner by Dr. Ernest L. Bishop, of New York City, in an article on "Narcotic Drug Addiction: A Public Health Problem," appearing in the July issue of the *American Journal of Public Health*.

Narcotic drug addiction is far more prevalent and widespread than is generally recognized, and it is suggested that there may be as many sufferers from narcotic drug addiction as there are from tuberculosis.

"It is now a matter of established record and proof that narcotic drug addiction is fundamentally a physical disease condition presenting definite and constant physical symptoms and signs, with invariable and characteristic physical phenomena, and that it has associated with it some of the most agonizing suffering known to humanity."

That addiction disease is even more widespread among mentally, morally, and physically normal individuals than among those persons generally

associated with the underworld is also maintained. Some of our prominent men and women are addicts and are striving to hide their ailment on account of the stigma which would be attached to them by an ignorant public, were their ailment discovered.

There is a sad lack of knowledge of the disease facts of narcotic addiction which is responsible for the absence of adequate provision for humane and intelligent handling of addicts, and as a result the sufferers are the victims of unscrupulous persons who offer drug cures for commercial gain only. The legislative restriction in the sale of narcotics, without provision for education and treatment, has resulted in an increase in criminal and illicit traffic in drugs.

It is exceedingly important that the conflicting views and beliefs held by medical and public health workers be carefully analyzed and properly interpreted. The intolerance of the existing schools of workers is especially deplored. Arguing and quarreling about cures and specifics obstruct real progress towards the rational, scientific handling of disease. Due to this state of ignorance, legislators and administrators regard addiction as habit, or appetite, or morbid mentality.

Scientific education for physicians and laymen is the remedy offered to rectify this situation, and health departments are urged to undertake this most important activity.

J. S.

Build Jacobi Memorial Hospital

A memorial hospital is planned by a group of New York physicians and friends of the late Abraham Jacobi, to be erected in Washington Heights in his honor. Plans are being made to conduct a week's campaign for financing the project. Heights Hospital Week will be held November 15 to 22. The board of aldermen will be asked to sanction the campaign. The committee that has charge of the arrangements is headed by Dr. S. Robert Schultz. Washington Heights has been selected as a suitable location for the new hospital because of a shortage in the number of hospital beds in that neighborhood.

DRAFT FIGURES SHOW 5.4 PER CENT VENEREAL CASES

Among the selective service men of the second draft, in which Uncle Sam called one million men for service in the United States army, fifty-four in every thousand had some form of venereal disease at the time of examination upon arrival at mobilization camps. This percentage, equivalent to 5.4 per cent, or nearly one in every eighteen men, includes only obvious cases of syphilis, gonorrhea, and chancreoid. Wassermann examinations were not given. The Public Health Service has prepared a chart showing the relative incidence of venereal diseases among the men from all the principal cities of the country. New England cities, for most part, show a lower rate of prevalence than cities in other localities. Cities which sent large quotas of colored men have high percentages.

THE INFLUENCE OF SEASON UPON THE PREVALENCE OF EPIDEMIC DISEASES

BY C. V. CRASTER, M.D., D.P.H., HEALTH OFFICER, DEPARTMENT OF HEALTH, NEWARK, N. J.

DANIEL DEFOE, in his Journal of the Plague in London, written in 1665, has probably given the most dramatic account of a plague visitation known to literature. "I am now come," he says, "to the month of September, which was the most dreadful of its kind, I believe, that ever London saw."

In all records of epidemic visitations, season has apparently been an important factor in the spread of disease, and,

indeed, the cessation of many epidemics has been entirely dependent upon the changes of weather, especially of temperatures. Cholera during the summer months has swept from Asia to the furthest western boundaries of Europe, ceasing only when the winter snows blocked the water courses and limited the human tide of traffic. The same may be said to the legion of diseases whose onset depends upon climatic conditions.

Seasonal Influence Two-Fold

These factors may act in two ways: (1) by a direct inhibitory action of the lowered temperature upon outside means of infection, as in the case of cholera, typhoid, dysentery, etc.; and (2) as affecting the habits of communities by bringing individuals into closer contact, as in the epidemic diseases of children, measles, diphtheria, and epidemic pneumonia during the months of winter.

Season, however, is not the dominating factor in the spread of any epidemic diseases, for a summer epidemic disease is just as likely to prevail in winter time if other means of spreading infection are present in an unusual degree.

There are, therefore, doubtless many conditions influencing the prevalence of epidemic disease which vary with each infection, but the deciding effect of season in the greater number of our known epidemics must be admitted.

In Parks and Kenwood's *Hygiene and Public Health*, 1902, the seasonal prevalence of cer-

SOME UNSOLVED PROBLEMS

The deciding effect of season in the greater number of our known epidemics must be admitted. There are, however, variations in the seasonal visitations of epidemic diseases which are brought about by other influences than season. In this connection it is to be noted that coincident with the change in the seasonal prevalence of certain diseases, there has been a marked alteration in the virulence or power of the virus to produce its known effect. These and other considerations which bear on the question of seasonal influences should be thoroughly investigated. A more exact knowledge of the subject is needful.

tain epidemics was charted. Since that time undoubtedly there has been some change in seasonal visitation. At that time smallpox had a maximum prevalence in early summer; it is now a disease of any period of the year. Scarlet fever, formerly a midwinter disease, is showing a tendency towards a maximum in the spring. Typhus fever, formerly a disease of winter and early spring, is now virtually extinct; but it may arise at any time if conditions of infection are present.

Coincident with the change in seasonal prevalence there has been seen a very marked alteration in the virulence or power of the virus to produce its known effect. For instance, it is recorded that syphilis was epidemic in the fifteenth century as a fatal and rapidly progressive disease. Leprosy was widespread, differing from its present endemic location. Similarly, within our own times very definite changes have been observed in the prevalence of scarlet fever and measles so as to show decreased mortality in both cases. Other diseases, such as cholera and bubonic plague, still maintain classic symptoms with unabated power to produce immediate fatal results.

Huxley, in "Time and Life," stated that "every variety to which a species may give rise is either worse or better adapted to surrounding circumstances than its parents. If better adapted, it must sooner or later improve its progenitors from the face of the earth."

Susceptibility to most epidemic infections is present in the human race and in a modern community the opportunities for exposure to infection must be legion.

There must, however, be an increasing immunity to the virus of epidemic diseases among men, a supposition very generally confirmed by experimental laboratory tests with the specific virus of disease in animals.

Ascribing then, as is frequently done, our modern immunity from medieval plagues to our knowledge of preventive medicine, due regard must be paid to changes brought about by altered states of body susceptibility.

This would explain the rapid disappearance of some diseases formerly very prevalent, such as leprosy, and the continued existence of others, such as the epidemic diseases of children, against which a sufficient immunity to ward off infection has not been established. The power of the virus to produce fatal results, although diminishing, has in many instances defied the utmost efforts at eradication. Such infections include measles, whooping-cough, scarlet fever, diphtheria, chicken-pox, and mumps—all diseases of early life.

There must be only a few persons who possess a natural insusceptibility, for the vast majority of adults appear to pass through the ordeal of infection by one or all of these common infections of childhood. With the exception of diphtheria, there are no means of ascertaining the existence of natural susceptibility to disease; its absence in the individual is usually only demonstrated by the onset of the disease symptoms.

Seasonal Incidence of Epidemics

The relationship of season to the common epidemics occurring in large communities was studied in a series of cases reported in the city of Newark for the year 1917. This year was selected as being a normal one with no undue prevalence of epidemic diseases. The reported cases were tabulated by age, sex, and color and, to avoid cumbersome figures, a percentage of each

division to the whole number was worked out for each disease.

It is immediately seen that all of the epidemic diseases are present in cities all the year round. A remarkable preference, however, is manifested by many diseases for certain seasons during which the prevalence is high among the susceptible population, and during which actual mortality is increased. On the other hand, the case mortality by month or week in seasons of greater prevalence may be considerably lower than at other seasons.

Scarlet fever is present all the year round. Its curve of seasonal prevalence is highest in March with a descending tendency running through July, August, and September. The case mortality for the diseases of the year was 0.4 per cent of all reported cases. The highest fatality is seen to occur in July, 4.3 per cent of cases. (Table II.)

Deaths from scarlet fever were recorded in January, July and December. (Table I.)

Since the time of Sydenham, few diseases could compare with scarlet fever in its range of prevalence and high mortality.

The present low mortality experienced is either a remarkable proof of diminished power of a virus to produce fatal effects or is significant of altered susceptibility of the individual himself.

Diphtheria Not Necessarily Seasonal

In 1910 the seasonal prevalence of diphtheria was pointed out in the monthly bulletin of the Massachusetts State Board of Health. It was then believed that the maximum of prevalence

TABLE NO. 1—PERCENTAGE OF SEASONAL PREVALENCE AND MORTALITY—1917

	Jan.	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.
	P. % ¹	M. % ²										
Scarlet Fever	11.7	10.0	13.7	9.1	9.3	9.1	3.4 33.3	2.4	2.8	8.2	10.9	9.4 33.3
Diphtheria	9.1	9.3	9.7	8.0	8.9	8.4	5.1	4.0	6.8	11.7	12.4	6.6
	1.0	10.0	16.0	4.0	14.0	10.0	8.0	2.0	4.0	6.0	14.0	14.0
Measles	1.1	3.2	13.8	19.4	16.5	11.4	5.4	3.2	1.4	3.2	5.8	17.6 40.0
Whooping Cough	2.0	1.6	2.4	4.5	8.6	12.7	20.1	16.5	10.0	6.5	6.9	8.2
	1.7	1.7	5.0	5.0	13.3	13.3	13.3	16.7	18.3	8.3	3.3	13.3
Typhoid Fever	3.6	1.8	2.7	2.7	6.3	6.3	6.3	17.1	20.7	14.5	9.9	8.1
		5.9	5.9	5.9		5.9	11.8	35.2	5.9	23.5	5.9	5.9
Epidemic Meningitis	2.3	2.9	4.4	11.8	20.5	19.1	7.4	19.1		1.5	5.9	7.4
		7.0	2.3	9.3	9.3	14.0	14.0	18.6	4.7	2.3	4.7	7.3
Pneumonia (Lobar)	16.0	13.1	14.6	9.2	9.8	4.7	3.0	2.2	2.5	5.1	8.3	11.5
	19.5	12.8	16.3	9.2	9.6	4.2	4.2	2.7	2.5	4.2	6.5	8.3
Pneumonia (Broncho)	13.6	14.2	11.7	8.6	7.2	5.9	3.0	4.0	3.4	5.8	8.7	13.9
	17.1	13.3	13.7	6.2	7.6	4.3	4.7	2.8	3.8	5.2	7.1	14.2
Erysipelas	14.9	13.4	15.7	1.2	13.4	11.9	6.9	2.7	4.2	3.1	3.8	8.8
	15.4	15.4	7.7	15.4			7.7			23.0		15.4
German Measles	0.1	0.9	9.8	21.3	38.1	24.9	1.9	0.7	0.2	0.6	0.6	0.9
Mumps	0.7	1.6	2.9	3.4	7.3	8.8 10.0	3.5	2.8	3.4	14.2	18.6	32.7
Chicken-pox	15.9	17.4	17.9	10.9	9.2	6.9	2.0	0.7	0.6	3.2	5.8	9.5

¹ Percentage of prevalence.

² Percentage of mortality.

was in January with a low summer record. Recent knowledge of the means of spread of infection of diphtheria suggests, however, that the peak of prevalence in diphtheria depends upon other conditions incidental to locality. In the cases under review the maximum of prevalence

few epidemic diseases still exercising undisputed sway in modern communities. It is questionable whether the disease is any less common than formerly, although the mortality appears to be less. The estimation, however, of the mortality from measles is not always as accurate as it may

TABLE NO. II—CASE FATALITY (PERCENTAGE) BY MONTHS—1917

DISEASES	Jan.	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.	Total
Scarlet Fever.....	1.3						4.3					1.6	0.4
Diphtheria	2.5	6.2	6.0	2.9	9.1	6.8	9.1	2.9	3.4	2.9	6.5	12.3	5.6
Measles				0.2	0.3	0.4						0.6	0.2
Whooping-Cough	1.4	1.8		1.8	1.0	1.8	1.1	1.7	3.0	2.1	0.8	2.7	1.7
Typhoid Fever.....			33.3	33.3		14.3		10.5	26.1	6.3	36.4	11.1	15.3
Epidemic Meningitis..			33.3	50.0	28.6	46.2		61.5		100.0	50.0	100.0	63.2
Pneumonia (Lobar)..	30.0	24.3	27.5	24.8	24.3	21.7	34.8	30.6	25.5	20.2	19.4	18.0	24.7
Pneumonia (Broncho)	23.5	17.5	21.8	13.3	19.5	13.4	29.4	13.3	20.5	16.7	15.2	19.1	18.6
Erysipelas	3.1	5.7	2.4	66.7			5.6			37.5		8.7	5.0
German Measles.....													
Mumps						1.6							
Chicken-pox													

was in October and November with the low incidence in August (Table I). The case fatality for the year was 5.7 per cent, and it is noticeable that fatal cases were reported all the year round. The deaths, however, were highest in May, November, and December, thus showing a double peak of high mortality (Table II).

An investigation of the deaths from diphtheria has consistently proved the life saving qualities of diphtheria antitoxin. In nearly all the fatal cases investigation showed that although antitoxin had been administered there had been considerable delay in the diagnosis.

A record of 622 cases of diphtheria in Newark, not treated with antitoxin, extending over a period of five years showed a death rate of 23 per cent. The case fatalities among the colored cases were as high as 20 per cent.

Measles Typically Seasonal

Measles has long been known as a typically seasonal disease, the months of low temperature being favorable for its spread. It is usually seen that there are two annual peaks of prevalence, well shown in the cases recorded for 1917. The early spring maximum is in April, 19.4 per cent of cases, and the mid-winter high prevalence in December, 17.6 per cent (Table I).

It may be said of measles that it is one of the

seem for the terminal pneumonia may follow upon measles symptoms so masked as to escape a diagnosis of that disease.

The case fatality for the year was low, 0.2 per cent, and indicates the extreme variability of the mortality from this disease in various years and among different communities. In an outbreak of measles among emigrant children at New York Quarantine in 1911 the fatality rate was 16.7 per cent.¹

The effect of season upon mortality from measles is somewhat striking. Forty per cent of all deaths occurred in December while April, May and June were responsible for the remainder (Table I). The case mortality was similarly highest in December 0.6 per cent (Table II).

Whooping-cough, it is stated, "is uninfluenced by season and weather." The disease is, however, apparently becoming seasonal inasmuch as the greater number of cases have been reported within recent years in late summer and fall months. All seasonal preferences in whooping-cough are lost when the disease follows upon other epidemics. It is, nevertheless, a true endemic disease and is seldom or never entirely absent in large cities.

The minimum of prevalence in the cases re-

¹Analysis of One Thousand Cases of Epidemic Measles, Amer. Jour. of Dis. of Children, vol. 6, pp. 122-130, 1913.

corded was in February, 1.6 per cent, with a curve which steadily rises to the maximum in July, 20.1 per cent (Table I).

The lowest prevalence was in the winter months—January, February, and March—which months account for only 6 per cent of the total. The case fatality for the year was 1.7 per cent, being four times greater than that for scarlet fever. The mortality from whooping-cough follows the prevalence curve with the exception that most deaths occurred in September, 18.3 per cent, two months later than the highest prevalence curve (Table I). In September, also, the highest monthly case mortality was recorded, 3.0 per cent (Table II).

With improved public sanatoriums and the consequent cessation of epidemic typhoid fever in recent years, it has been possible to realize its perennial presence in most cities. The endemic type of the disease is, however, subject to an annual fluctuation with the vacation period emphasised by "vacation typhoid." Commencing with a low incidence in February of 1.8 per cent, there is a fairly even increase till August, when the sudden summer rise takes place with a maximum of 20.7 per cent of the cases in September (Table I).

The case fatality for the year was 15.3 per cent; the monthly deaths were highest in the month of greatest prevalence, September, 35.4 per cent.

The highest monthly case fatality was in November, 36.4 per cent (Table II).

With epidemic meningitis established as an endemic disease it has apparently developed a period of activity during late spring and early summer months. It is seen that 51.4 per cent of all cases were distributed fairly evenly between the three months, April, May and June (Table II). Although the number of cases reported was small, the high case mortality of 63.2 per cent attests to the true character of the infection. Deaths were recorded from this disease in every month, the highest number being in August, 18.6 per cent (Table I) while the monthly case fatality was highest in October and December, all the reported cases in these months ending fatally (Table II).

It is only under very special conditions that the pneumonias are to be classed as epidemic diseases. It may be said that lobar pneumonia is a true seasonal disease, and could not exist without the immediate factors of cold and damp with sudden and rapid changes in temperature and humidity. It is natural, therefore, to find the greatest number of cases in the cold winter months as is the case. The curve of prevalence commences with

a maximum in January, 16.0 per cent of cases, to a low level in August, 2.2 per cent of cases. The case fatality was 24.7 per cent for all cases. The fatal cases of the disease are also more frequent in January, 19.5 per cent of cases; in fact, 48.6 per cent of all fatal cases occurred in January, February and March (Table I). The monthly case fatality, however, is highest in July, 34.8 per cent (Table II).

The bronchial type of pneumonia is not so truly a seasonal disease and has its greatest prevalence during epidemic years. The number of cases of this type of pneumonia reported is only about half of those of the lobar form. The seasonal incidence is, however, similar to lobar pneumonia being highest in the colder months (Table I).

The case fatality is less than lobar pneumonia, 18.6 per cent. The fatal cases occurred frequently in December, January and March, 60.3 per cent of all fatalities. The monthly case fatality was highest in July, 29.4 per cent, in this manner resembling the record of lobar pneumonia.

Erysipelas Subject to Control

Of all the epidemic disease erysipelas is with the exception of small-pox the best example of human control over a once dreaded affection. It is, however, still an endemic disease being reported at intervals throughout the year. The cases are frequently fatal, the fatality for 261 reported cases being 5 per cent. The disease has, however, become more seasonal than heretofore and shows a preference for the cold months, 70.5 per cent of all cases being reported in the first six months.

The monthly case fatality was highest in April, 66.7 per cent, and October, 37.5 per cent.

The seasonal prevalence of German measles resembles very much that of measles. There is a low incidence in January, gradually rising, to a peak in May, 38.1 per cent. It differs from measles, however, in not having a midwinter peak of prevalence. There is no recorded death from the disease.

Mumps as an epidemic disease has a very decided seasonal incidence and resembles measles in having two annual maxima, one in June, 8.8 per cent, and the other in December, 32.7 per cent. The disease is not frequently fatal and the case mortality was only 0.1 per cent of all cases.

Chicken-pox resembles the former historical period of small-pox with its prevalence during winter and spring months. More than half the cases, 62.1 per cent, were reported in the first four months. The prevalence increases slowly till the peak is reached in March, 17.9 per cent, with a minimum in September.

THE VALUE OF THE PUBLIC HEALTH NURSE TO THE COMMUNITY

BY HELENA R. STEWART, PH.B., R.N., SECOND VICE PRESIDENT, NATIONAL ORGANIZATION FOR PUBLIC HEALTH NURSING, NEW YORK CITY

FOR the first time in its history the United States Public Health Service, during the recent war, organized a division of public health nursing and considered the work of the public health nurse one of the essentials to good health administration. To be considered essential, one must fill a need which no other type of person can fill, or fill as well. There are certain branches of health work which public health nurses are especially qualified by their experience and training to do—and do better than physicians or sanitary inspectors, and it was this fact which led the government to consider them as essential to modern health administration.

Public health nursing like all other branches of nursing is not a work by itself, but a very necessary complement to the work of others. If physicians and health officials find the nurse's part of the health program essential, so, too, her success is quite dependent upon their recognition and support.

A Wide Sphere of Influence

A successful public health nurse reaches so many different groups of people that her opportunities for helpfulness are very great. She comes in touch with women's clubs and other private organizations, with boards of health and boards of education, with life insurance companies and social agencies, with city and county officials, and chambers of commerce, with physicians, ministers, and teachers. But best and most useful of all the nurse's opportunities is her welcome in the homes of the people. She gains this welcome through her services in time of sickness, and through her interest in and care of the children of the family. This tangible service can be understood and interpreted in terms of friendliness, so that advice in ways of health is graciously taken.

In backing up the public health nurse and in helping her to perform her daily tasks effectively, the women of the Nation will be backing one of the most vital agents in the struggle against the diseases which threaten the health and prosperity of all of us, and the very life of our children, which is the life of our Nation. No endeavor to promote the public health can attain full success without her. Her offices are not a charity, but a necessary function, and the service which she performs should be placed universally at the disposal of residents in all communities. In rural districts no less than in cities, towns, and industrial centers, is the service of the public health nurse needed.

"In the control of communicable disease, the public health nurse, who will go to each home, show the mother just how to care for the patient, how to disinfect all discharges and all clothing, and how to protect herself and the family and neighbors from infection, will be far more effective than hundreds of printed circulars or dozens of inspectors who tell the precautions but do not actually demonstrate them with

their own hands. Moreover, the nurse, while she is giving such services, often gets bits of information from informal conversation about the personal habits of the family, about recent visitors or trips away from home, and about services being performed by relatives or neighbors; all of which may be of the greatest importance in tracing the source of infection, or preventing its further spread,—items which would seem to the family of too little consequence to tell an inspector."

Nurses in the Venereal Campaign

Forty-four Public Health Nurses were detailed to work under forty medical officers in the twenty-seven government venereal disease clinics established by the United States Public Health Service. Surgeon General Blue says of them, "The work which these nurses performed was of inestimable value. It is not too much to say that without their aid our success in keeping down sickness in the extra-cantonment zones and in making the venereal disease rate in our army lower than that of any other army in modern times could not have been achieved. In continuing our general campaign for health, and this special fight against venereal disease, we depend upon the continued assistance of public health nurses. . . . We depend upon the women of the nation not only for understanding and support, but we depend upon them to encourage

young women to take up the profession of the public health nurse, and to insist that hospitals provide training for nurses in public health service, including work in venereal diseases. In backing the public health nurse, the women of the nation will be backing one of the most vital agents in the struggle against the diseases which threaten the health and prosperity of all of us, and the very life of our children which is the life of our nation."

Health Education Is Health Protection

The foundation of public health protection is the education of the people in ways of health. Some individuals can be reached by magazine articles and addresses, by newspaper talks and health leaflets; but thousands read little and think little. One logical beginning place for public health education is the school. A system which gathers in the rich and the poor, the bright and the dull, the healthy and the unhealthy, presents many complications; but the school is a well established institution through which, because of our compulsory education laws, most of our citizens must pass. It holds the individual in the years when the mind is receptive and when his chief occupation is to acquire knowledge. The children, assembled as they usually are in school room groups of graded ages and mentality, can be reached conveniently and instructed befittingly in matters of hygiene.

There is no better place to teach the prevention of tuberculosis. It is often too late to change the established customs of an adult, especially when his education is absolutely completed and he knows everything. During school years not only the child's mind but also his body is passing through a most important period of growth. Experience has shown that the most effective way of securing correction for the defects revealed by the physician's examinations is for the nurse to visit the parents, explain the trouble, and help them get the remedy. To find a defect means little if the parents are not persuaded to have it corrected, if the child is not taken to the proper place to receive medical care and treatment, if the educational work in the homes is omitted.

In the schools of New York City medical inspection of school children was started by employing physicians to examine the children for communicable diseases and to exclude those who showed suspicious symptoms. Thousands of children were sent out of the schools because of infectious eye and skin troubles, but after school hours they played with the same children for whose protection they had been excluded from the class room. In 1903, of all the written in-

structions sent to the homes by the medical inspectors, only 6 per cent were carried into effect, whereas some years later, 84 per cent became effective under the direction of nurses, who interpreted the physicians' directions to the mothers and taught them to give the treatments ordered. In 1903 there were 57,000 exclusions for minor eye and skin afflictions, while after the introduction of school nurses the number was reduced to 4,000. The medical inspectors themselves were the first to say that their work without the nursing service was futile.

Nursing Service a Necessary Adjunct

An English school physician wrote of his work as follows: "When I first commenced my duties as school medical inspector in Wimbledon, it was impossible not to feel exceedingly depressed and hopeless with the work. As a doctor, I felt quite stranded in the strange atmosphere of an elementary school, coming into contact not so much with actual illness as with the primary conditions which produce or foster it; dirt, neglect, improper feeding, malnutrition, insufficient clothing, suppurating ears, defective sight, verminous conditions, the impossibility of getting adequate information from the children, or a knowledge of their home conditions, and nobody to whom one could give directions, or to help one in examining the children. The only means of approaching the parents was to send an official notice that such or such a condition required treatment, and it was impossible, besides being outside my duties, to carry on any treatment at the schools. My duties began and ended with endless notifications, and there it all stopped as very little notice was taken of them."

Health Nurses for Rural Schools

In contrast to the development of school work in a large city, in our own state the Ohio Society for the Prevention of Tuberculosis, cooperating with the State Department of Health, is employing a nurse to demonstrate public health nursing in the rural schools of Ohio. In one county she visited forty-three schools, gave sixty-five health talks, and examined 517 school children. She found 711 physical defects in these 517 children. And in each instance the parents were notified that the child should be taken to a physician, dentist, or eye specialist for diagnosis and treatment.

In writing of her work in one rural school, she says in part: "I feel that my work in this township has had results which are already showing. In one room five children whose vision seemed to be defective and whom I referred to

eye specialists have already been fitted to glasses. I can't say too much about the children. I love them all. They are so responsive, and I wish you could be around some time and hear them talk to me and ask questions. At a meeting of the parents and the Village Improvement Society the subject for discussion was 'What is the best thing for us to do in our community?' They decided unanimously that they wanted a school nurse. They come to me from right and left to have me tell them about the work and they arrange little meetings of people especially interested in what I am trying to do. I can't tell you how much I am enjoying this work. It does seem worth while when you can see the results forthcoming."

A principal of one of the township schools called up the county superintendent asking if the nurse couldn't stay a little longer. He said that the parents were beginning to realize what it meant and they were "tormenting" him to have their children examined before the nurse left. Some of these very parents had at first objected to her coming.

School Superintendent Approves

The following is a part of a letter received from the county superintendent of schools: "Your announced plan to call Miss C. from our county, March 15, has given me much concern. Since I realize that there are other places with children whose needs are just as urgent, I trust you will not regard this as a selfish move on my part. Our county never had a public school nurse, and for that reason never felt the need of one, simply regarding such work more or less a frill. However, a few boards of education consented to allow us to make a trial this year. Of course, you know what the nurse proposition was in face of the war demands. In fact, we were wholly unable to secure any nurse properly qualified to succeed, even after the boards had given us permission to proceed. Our only outlook for this year was based on the possibility of you being able to send us someone. You sent us Miss C. who is succeeding admirably in developing sentiment and will do a great work if she is given sufficient time.

"The attitude in the communities where Miss C. has been, or is, changing. Interest in other places is developing. The outlook is favorable—more than that. If Miss C. withdraws, March 15, to go to another county do you think the total good done in both counties will equal that done in one, where the acceleration developed in a given community becomes a contributing force in starting things in a neighborhood? Then, too, I know that it will not be understood by the com-

munities if, after our saying so much concerning the work, no attention is given them. Pointedly, I believe the rapidity of the health movement in this county is at stake in the too early withdrawal of Miss C.

"Another matter I wanted to discuss with you was the possibility of us employing Miss C. next year as our county nurse. I remember requesting you to send us a lady with a good personality. This you have done. Children love her. Parents become attached to her. She is sensible, devoted to her work, and morally strong. We want her in this county. We would like a proposition from you now so we can work it out."

School Nursing Not an Experiment

In the large city the school physician came first and soon proved the need for the school nurse. In the small cities and rural communities the nurse has usually come first and shown the need for the physician, the psychologist, the dentist, and the eye specialist, and no system of physical supervision of school children is complete without them all.

"The school nurse is not a passing experiment. She is a vital part of one of the most important of our national institutions. Through her work American citizens are physically fitted to receive the education which in its turn is to fit them for the responsibilities of citizenship. It is her duty to so teach the value of health both to children and parents as to make them realize that its attainment is worth some real sacrifice on their part; it is her duty to strengthen parental responsibility in new directions. It is her duty to strengthen the hands of teachers and physicians, and also to do her part toward making the American school an institution where bodies as well as brains are developed for a life of usefulness."

Public Nurses and Infant Welfare

"Nothing reflects good or bad conditions in a community more quickly than the rate at which the babies sicken and die." There is no branch of child welfare which does not directly or indirectly concern the public health nurse. It is she who teaches mothers in their own homes concerning care during pregnancy, the need for medical supervision, and the care, feeding, and clothing of babies. She knows of the births in her community and can help in the encouragement of birth registration. If a baby clinic or health center exist in her district, it is the nurse who persuades the mothers to bring their babies, and who in cases of sickness urges medical care instead of the following of the advice of a kind-hearted though ignorant relative or neighbor.

No one would think of sending a boy into a profession or a trade without some instruction and preparation, yet most of the young mothers have been sent into their profession of motherhood without any knowledge of the care of an infant or a young child. The high mortality rate of infancy suggests how inadequate is this method of trusting to instinct and the advice of the neighbors. School nurses all over the country are teaching the girls in the higher grades something of the proper care and feeding of infants, and the simple rules of hygiene and health. The knowledge is immediately useful in families where there are little brothers and sisters at home and, later, when these girls are real mothers, they will not altogether forget the instructions received, and can take up their responsibilities with more intelligence than that which their parents possessed. "Visits in the homes, to keep babies well by detecting little symptoms of illness, carrying out the physician's orders in the preparation of food, systematic instruction of physician and nurse in well baby clinics—these save more lives than the most perfectly run baby hospitals."

The Nurse and the Tuberculosis Movement

The public health nurse in the community may be a very active agent in the movement against tuberculosis. In that movement laws have been enacted, ordinances passed, appropriations made, departments and laboratories established, hospitals, sanatoriums and other institutions built and equipped; but before the people are educated to the use of all this, the message of the expert and the scientist must be translated into the simplest terms and taught by patient, painstaking, oft-repeated demonstration. As the treatment lies for the most part with the patient himself and with the way he is willing to live for a year or two, the physician will instruct him, but it is the nurse who visits him repeatedly, trying to help him keep up his courage and determination. The protection of the other members of the family is also her province—to get them all examined, to build up their resistance, if it is low, and to teach them how to care for the patient in such a way that nobody can be infected by him. Getting patients into hospitals and sanatoriums, sometimes securing suitable work for them when they return—all these things take too much time for a physician, too much special knowledge for even the best intentioned relative or neighbor, and yet they must be done and done well.

While nurses do not make a diagnosis, they should be able to recognize the danger signals of cancer and in the campaign for its control help to bring about early consultation and treatment.

They have an opportunity to observe the early symptoms and advise people accordingly.

Public Service Not a Charity

It should be emphasized that a public health nurse, whether employed by a city, county, or voluntary organization, is not an agent of charity. Her work is that of a nurse and a teacher. While it is true that she gives gratuitous service in the homes of the poor, at the same time she should be at the paid service of self-supporting and self-respecting families. With an income of twenty or thirty dollars a week, no family could long afford to pay for the full-time services of a graduate nurse; but such a family need not be an object of charity. It might afford and be willing to pay for a part-time service and so secure the necessary nursing care for the sick member. Municipal and school nurses have done much to disabuse the public mind of its old habit of associating visiting nursing and charity, and to impress upon it the new idea of public health nursing which may well include all classes of people.

The General Assembly of Ohio in passing the Hughes Bill has provided for a health administration which shall include a public health nursing service in each of the districts created by the bill.

Nursing Should Be Universal

It is the ambition of the Bureau of Public Health Nursing in the State Department of Health to see Ohio covered with lines of a public health nursing service like a cobweb on the grass, so that no child or maternity patient, however remote, need go without care; so that the various clinics which the department expects to see established may have the necessary link between them and the home; so that we may have a better protection from tuberculosis and other preventable diseases; for the properly qualified health nurse, going as a friend and with a friend's welcome into clinics and schools and into the homes of the people bringing the individuals to the physician and the physician's message to the people in simple terms which they can understand, is giving a service so great that its extent is difficult to imagine.

DEALING WITH THE MORON

The recurrence of crimes committed by morons in Chicago has prompted the study of the problem by the municipal courts and a committee of citizens. The outcome of recent conferences has been an effort to institute medical study and medical care of this type of defectives and psychopathic delinquents during early childhood and infancy. Sterilization of adult criminals and defectives is advocated by several of the physicians and public officials who participated in the conferences. The committees of legislation, of publicity, and of survey

and educational problems have been named. County Judge Thomas F. Scully, chairman of the citizens' committee, at whose instance the conferences were called, urges the establishment of a special state institution under the control of a state commission which would operate colonies and carry on corrective work in cooperation with physicians, clinics, and schools.

The medical directors of several state institutions attended the conferences and told the results of their experience with defective patients and criminals.

LEGISLATION FOR PUBLIC HEALTH

Veneral Diseases

At least thirty-four governors made strong recommendations in their annual messages to the state legislatures for the passage of measures for the protection of public health, and practically every state in the Union passed some forward looking legislation.

There were many reasons for the special activity in health matters this year, chief among which were the revelations of mental and physical deficiencies shown by the draft, the national campaign for the control of venereal diseases, and the general recognition of the importance of man power in the life of the nation.

The widespread and efficient campaign by the United States Public Health Service and by state and city health departments for the control of venereal diseases, and the prospect of national aid in carrying on the work caused an almost universal approval, and resulted in the enactment of laws in at least thirty-five states. These thirty-five states appropriated more than a million and a half dollars to cooperate in the eradication of venereal diseases. Notably large appropriations were made in Michigan, Kansas, California, New York, Oklahoma, and Washington.

Wisconsin made a large appropriation for the prevention and control of venereal diseases, strengthened existing laws and authorized the board of health to make rules for their control.

Many of the states that had not already given authority to their state Boards of Health to pass rules and regulations to repress these diseases, passed such acts at this session. Probably in no single year on any subject has there been such widespread and drastic legislation enacted. Several states created special detention homes or reformatories for women suffering from venereal diseases. Among these states are Colorado, California and Washington.

State Departments of Health

The year saw the creation of a new Department of Health in New Mexico and the reorganization of other state departments. The new law in New Mexico is comprehensive and contains most of the accepted principles for such departments.

The state of Michigan abolished its State Board of Health and created a state Health Commissioner to be appointed by the Governor and to exercise rather broad power. The state of Missouri also gave broader powers to the State Department of Health, and the state of Ohio provided for eight deputy commissioners of health to be assigned to districts into which the state is to be divided.

The state of Montana re-created the State Board of Health to consist of five members, all physicians, who are to select a secretary who is also to be a physician qualified to practise. After the first appointment, all the Board members are to be nominated by the Montana Medical

Society. Idaho consolidated the state government and, among other changes, abolished the State Board of Health, and put the duties into the hands of the Department of Public Welfare which is headed by a commissioner.

Wisconsin increased her health appropriation and gave added powers to the state Board of Health. Wisconsin fixed the qualifications of health commissioners and deputy commissioners.

Oregon revised the law creating the state Board of Health and gave extensive powers to the new board. Oregon created a state Board of Eugenics and gave power to the board to "protect society from the menace of procreation by giving authority to sterilize feeble-minded, insane, epileptic, and criminal degenerates in certain instances." Oregon gave the state Board of Health complete control over local boards of health in suppressing disease.

Connecticut, also, gave the state Board of Health control over the local health departments.

Vermont provided for district health officers to be appointed by the state Board of Health, and abolished other local health officers.

Functions of Health Departments

The most comprehensive legislation of the year and probably the most comprehensive ever enacted in any state for local health administration was passed in Ohio. That state had previously had more than 2,100 local health units. There were only six whole-time health officers in the state, and local administration was notoriously inefficient. The new law creates a whole-time health department in every city of over 25,000 inhabitants and in districts corresponding to county lines. The State Department of Health may also approve whole-time health departments in cities under 25,000 at their discretion.

The law makes approximately 112 health districts, over each of which there is to be a whole-time health officer appointed by local authorities from an eligible list prepared by the State Civil Service Commission. Appointments are to be approved by the State Department of Health, and the Department is given extensive powers of control over the local officers.

In each of the health districts at least one public health nurse is to be provided, and authority is given for the employment of as many more as are deemed necessary. Each district must provide by itself or cooperatively for a public health laboratory where the simpler tests may be made.

Wisconsin strengthened and defined the powers of quarantine, and includes influenza and la grippe among the reportable diseases.

Washington passed a comprehensive act regulating the sale of milk and milk products.

Nebraska revised and strengthened her laws, creating local boards of health in the counties, cities, and villages.

Maine provided for local health officers in every city, town, and organized plantation, to be appointed locally but subject to control by the State Commissioner of Health.

West Virginia authorized the county and municipal courts to provide whole-time health officers who shall give their entire time to the duties of their office.

Child Welfare Bureaus

Legislation for child welfare was prominent in many states, a natural outcome of the nation-wide campaign by the United States Children's Bureau and the associations

allied with it. At least four states,—Missouri, Rhode Island, West Virginia, and California,—created child welfare bureaus in the state departments of health. These bureaus followed the usual form for such bureaus in a large number of the states which have been created, either by statute or by action of the state department. *Ophthalmia neonatorum* laws were passed in West Virginia, Delaware, and New Hampshire.

Oregon provided for free medical care at the medical department of the state university for sick and deformed indigent children.

Public Health Nurses

A number of states authorized the employment of public health nurses by cities, towns, and other local units. Ohio first authorized the employment of public health nurses and later, in the reorganization act, required their employment in each health district. The state of California authorized the employment of public health nurses in towns and cities.

Wisconsin required every county board within the next two years to employ one or more country health nurses or health instructors.

Rural Sanitation

The state of North Carolina, which to a considerable extent has been of a pioneer in public health matters, and particularly in matters of rural health, comes to the front this year with a most far reaching act to "prevent the spread of disease from unsanitary privies." This Act applies to all residences which are within 300 yards of any other residence, and requires the State Board of Health to license and inspect all privies which are not provided with sewers or with septic tanks. A charge is made of forty cents for each inspection. A department of sanitary engineering and inspection is created in the State Board of Health to carry out the inspection. It is expected that from thirty to thirty-five thousand dollars will be collected from the license fees, which will be sufficient to pay the cost of enforcing the Act. The state is to be divided for the purpose into ten districts.

The state Board of Health is directed to make a physical examination of school children. One-third of the state is to be inspected each year, and an appropriation of \$50,000 is made by the state and an additional \$27,000 by the counties. Considerable machinery had already been created in North Carolina for the carrying on of this work. A new law was also passed making provision for adequate sanitary equipment for public schools.

Special Hospital Provisions

Iowa passed a number of progressive medical and health measures, one of which puts the state far in the lead in respect to the particular type of legislation providing for free medical and surgical care for the adult cripples who are unable to pay the cost of their care. Hereafter in Iowa any such person may be certified to the state college of medicine and may be sent to the hospital or the college, where the best available medical and surgical attention will be given at the expense of the state. Important provisions of the act are as follows:

"Whenever it shall appear to any physician, county supervisors, township trustees, public health nurse, overseer of the poor, policeman, priest, or minister that there is any legal resident of his or her county over sixteen years of age, afflicted with any malady or deformity which can probably be remedied by proper care and medical or surgical treatment, if said person, or the parent, parents,

or guardian, or other person having legal custody of said person, as the case may be, is unable financially to provide proper care and medical or surgical treatment, it shall be the duty of such physician, county supervisors, township trustee, public health nurse, overseer of the poor, policeman, priest, or minister to report the same to the judge of the district or superior court having jurisdiction in the county in which said person resides. Upon the filing of such report with the judge of the district or superior court as aforesaid, he shall appoint some physician who shall personally examine said person with respect to the malady or deformity. Such physician shall make a written report to said judge, giving such history of the case as will likely aid the medical or surgical treatment of such deformity or malady, and describing the same, all in detail, and state whether or not, in his opinion, the same can probably be remedied. Such report shall be made within such time as may be fixed by the court and upon blanks to be furnished as hereinafter provided. It shall also be the duty of said judge to have a thorough investigation made by the county attorney of his county regarding the financial conditions of the said person, or of the parent or parents, guardian, or other person having legal custody of said person, as the case may be.

"If the judge finds that the said person is suffering from a deformity or malady which can probably be remedied by medical treatment or hospital care, and that the person, or the parent or parents, guardian, or other person having legal custody of said person, as the case may be, is unable to pay the expenses thereof, said judge may, with the consent of the said person, or parent or parents, guardian, or other person having legal custody of said person, as the case may be, enter an order directing that the said person shall be taken to the hospital of the college of medicine of the State University of Iowa at Iowa City for proper hospital and medical or surgical treatment.

"It shall be the duty of the admitting officer of the said hospital of the college of medicine of the State University of Iowa, upon receiving any such person to provide a proper bed in said hospital and to assign or designate the clinic of the said hospital to which such person shall be assigned for treatment; and the physician or surgeon in charge of said person shall proceed with proper care to perform such operation and bestow such treatment upon said person as, in his judgment, shall be proper and necessary. A proper and competent nurse shall also be assigned to look after and care for said person during such hospital care and medical or surgical treatment, as aforesaid."

This Act follows a similar act which had provided for care of crippled children at the state college of medicine.

Iowa also created at the state college of medicine a "State Psychopathic Hospital specially designed, equipped, and administered for the care, observation, and treatment of persons who are afflicted with abnormal mental conditions." Iowa also passed a complete state housing law.

Indiana made large appropriations for the creation of a new institution for the care of the feeble-minded. Tennessee established an institution for the feeble-minded.

Idaho made an appropriation of \$140,000 for a state tuberculosis sanatorium.

Ohio in addition to the reorganization of local health departments, passed several important measures. Medical and surgical treatment of crippled children at public expense is provided for. A state board of optometry to regulate the practice of optometry was created. Large

appropriations were made for the establishment of institutions for the feeble-minded.

Wisconsin authorizes any county in the state to establish an out-patient department in connection with the county tuberculosis sanatorium, or a public health dispensary for tuberculosis and other communicable diseases.

Oklahoma provided for three state tuberculosis sanatoriums, and also passed a law for county hospitals.

Wisconsin provides for the appointment in counties where they have county tuberculosis sanatoriums of a director of occupational therapy.

General Sanitary Measures

West Virginia gave important powers to the state Health Department to inspect plans for water and sewerage plants. All cities and towns and persons must submit to the public health council any proposed system of water supply or of the disposal of drainage or sewerage. "No city, town, or village, and no person, firm, or corporation shall establish any system of drainage, sewerage, or water supply system until the same shall have been approved in writing by the state Health Commissioner." Violation of this counsel constitutes a misdemeanor. West Virginia also provided for the free distribution of diphtheria antitoxin to the indigent poor. Provision is made for distributing supplies to drug stores, but no appropriation was made to carry out the Act and it therefore remains a dead letter.

California revised and improved her act regulating the sanitation in labor camps.

Wisconsin made new regulations on plumbing installations, and contractor's licenses, and amended the laws relating to the control of water and sewage systems. Provision was made for the appointment of a full-time sanitary engineer, and the board is given ample power to enforce his findings in the construction and purification of water supplies, the disposal of sewage, and purification of industrial waste.

Matters of Registration

Idaho made requirement for an annual registration of physicians at \$2 each.

California created a new type of medical practitioner called "trained attendants." The State Board of Health is authorized to issue certificates to applicants to care for the sick as trained attendants, and to issue rules and regulations governing such care and to establish and conduct schools for the training of trained attendants.

Nebraska passed an act providing for the regulation of birth and death registration in the state.

West Virginia provided for the creation of a Division of Vital Statistics in the state Department of Health.

Wisconsin provided a legal method for filing delayed registration of birth, death, and marriage certificates so that they may be accepted as legal proof of the birth, death, or marriage. Wisconsin also provided that whenever the parents of a child born, or the bride or the groom in case of marriage, or the deceased person in case of death, resides in any other city, village, or town, the local registrar of such district shall send to the district of residence an exact copy of the birth, death, or marriage record.

Medical Cults

Chiropody was re-defined by a new statute in New York. The definition reads: "chiropody or podiatry shall be held to be the diagnosis of foot ailments and the practice of minor surgery upon the feet limited to those structures of the foot superficial to the inner layer of the

fascia of the foot, the palliative and mechanical treatment of deformities and functional disturbances of the feet; but it shall not confer the right to treat communicable or constitutional diseases of the bones, ligaments, muscle, or tendons of the foot or any other part of the body, or to perform any operation on the bones, ligaments, muscles, or tendons of the feet involving the use of any cutting instrument or the right to use any anesthetics other than local."

New Hampshire passed a new act regulating the practice of chiropody.

Washington provided for a state Board of Chiropractic Examiners and the regulation of chiropractics. Montana adopted by a vote of the people in November, 1918, a chiropractic license act.

Labor Legislation

Workmen's Compensation Acts were passed in North Dakota, Missouri, and Tennessee. Several states increased the extent of medical care in workmen's compensation cases.

Ohio removed the five-man limit and made the law applicable to employers of one or more employees.

The employment of women was prohibited in Ohio in the following occupations: crossing watchmen, section hand, express driver, molder, bell hop, taxi driver, gas or electric meter reader, ticket seller except between six o'clock in the morning and ten o'clock at night, work in blast furnaces, smelters, mines, quarries except in the offices thereof, shoe-shining parlors, bowling alleys, pool rooms, bar rooms, and saloons or public drinking places which cater to men exclusively and in which substitutes for intoxicating liquors are sold or advertised for sale, delivery service or wagons or automobiles, operating freight or baggage elevators, baggage handling, freight handling and trucking of any kind, any employments requiring frequent or repeated lifting of weights of more than twenty-five pounds.

Vocational rehabilitation acts for the reeducation of persons disabled in industry or otherwise were passed in New Jersey, Pennsylvania, and Illinois.

Similar legislation had previously been enacted in Massachusetts placing the control under the Employer's Compensation Commission. The Smith-Fess Bill providing national aid to the states for vocational rehabilitation of the disabled has already passed the Senate and is pending in the House.

SERBIA'S NEED FOR HEALTH AGENCIES

The death rate from tuberculosis in Serbia during the German occupation jumped to the astounding figures of 1,453 in every 100,000, according to a news bulletin released by the American Red Cross. These statistics were gathered by Col. Homer Folks, who recently made an exhaustive survey of the Balkan states for the American Red Cross. He said there are no accurate figures on the ravages of typhus and influenza, but that infant mortality has increased alarmingly.

"Before the war the birth rate of Serbia was higher than her death rate, which meant that despite the inroads of epidemics, her population was increasing at the rate of 85,000 a year," states Colonel Folks. "Now it is accordingly decreasing," he says. "Bereft of her man power and with her women and children organically wasted, the question of population to till the soil and build up the country is a perplexing one, not easy of solution."

Fixing the remedy for this depletion, Colonel Folks recommends the following necessities for public considera-

tion: doctors, nurses, health officers, medicines, hospitals, clinics, dispensaries, organized public health agencies, district health nurses and visitors, facilities for combatting both the usual epidemics of typhus and influenza, and the always present tuberculosis and scarlet fever. Serbia needs money, trained workers, and training schools.

FUNDS FOR PUBLIC HEALTH SERVICE

In the appropriations measure passed by Congress carrying allotments for the support of activities under the United States Public Health Service, there occurs this instruction: "The heads of the several executive departments and other governmental establishments are authorized and directed to submit to Congress not later than the first Monday in December, 1919, a statement showing for the fiscal year of 1919 the activities of their respective establishments pertaining to the public health and the amount expended on account of each of the said activities."

The Sunday Civil Bill passed by Congress appropriates for the use of the Public Health Service the following sums: for pay, allowance and quarters of commissioned medical officers, \$850,000; for pay of noncommissioned medical officers, \$300,000; for pay of all other employees, \$700,000; for traveling expenses of officers officially detailed to attend meetings to promote public health, \$40,000; for light, fuel and water, \$135,000; for furniture and repairs, \$8,000; for medical and hospital supplies, \$85,000; for maintaining the Hygienic Laboratory, \$27,000; for the maintenance of Marine hospitals, \$625,000; for medical examination of all persons so entitled, \$220,000; for shipment of bodies, \$5,000; for scientific books, \$500; for medical, surgical and hospital services for all persons entitled to treatment under the provisions of the War Risk Insurance Act, \$4,000,000; for the maintenance of quarantine service, \$20,000; for the prevention of epidemics of cholera, typhus fever, yellow fever, smallpox, bubonic plague, Chinese plague, trachoma, influenza or infantile paralysis to be spent in the discretion of the President, in any threatened or actual emergency, \$400,000; for field investigation of the propagation and spread of disease, \$300,000; for interstate quarantine service, \$25,000; for special study and demonstration in rural sanitation, \$50,000; for special study in pellagra, \$30,000; to regulate the sale of biologic products, \$35,000; for the maintenance of the bureau of venereal disease, \$200,000; for the improvement of the Hygienic Laboratory \$20,000. Improvements for Marine hospitals are included, as follows: at Chicago, \$121,000; at Cincinnati, \$10,000; at Mobile, Ala., \$60,000; at Savannah, Ga., \$10,000. The medical department of the Army was granted \$52,500 for artificial limbs and appliances for disabled soldiers.

MEDICAL SUPERVISION OF SCHOOL CHILDREN IN PENNSYLVANIA

The most complete data on medical supervision in any state are found in the annual reports of the Pennsylvania Department of Health. This department is authorized to make medical inspection of schools unless the school districts vote against it. There has been an increased interest, and year after year the number of schools that have voted against inspection has grown smaller, and now the inspection covers practically the entire state. For the year 1916-1917, 18,710 schools were inspected. There were employed 995 medical inspectors and the number of pupils inspected was 455,510. The number of pupils

inspected in 1917-1918 had increased to 485,008. Below is given the compilation of figures for the two years 1916-1917 and 1917-1918, showing the kinds of defects discovered:

TABLE NO. I
COMPARISONS AND TOTAL NUMBER OF DEFECTS AMONG PENNSYLVANIA SCHOOL CHILDREN AS DISCLOSED BY SCHOOL INSPECTIONS

	1916-17	1917-18
Pupils inspected	155,510	455,008
Approximately normal	105,059	119,593
Number found defective	349,551	365,415
Single defects	188,111	204,311
More than one defect	161,149	161,104
Total number of defects	581,923	555,986
Treatment advised (pupils)	328,971	340,689

This table indicates that in 1916-1917, 76.7 per cent of the children were found to have one or more defects and in 1917-1918 75.3 per cent.

TABLE NO. II
TABULATION BY DEFECTS, SHOWING IN DETAIL THE RESULTS OF MEDICAL INSPECTIONS IN PENNSYLVANIA SCHOOLS

	1916-17	1917-18
VISION		
Pupils having defective vision	\$6,597	86,944
Right eye only	13,602	13,132
Left eye only	11,089	11,218
Both eyes	58,906	55,665
Total blindness one eye		928
Pupils having other eye afflictions	4,505	5,035
Corneal scars alone	261	1,120
Blepharitis	1,682	1,589
Conjunctivitis simplex	1,147	1,033
Conjunctivitis follicularis	9	5
Iritis	1	3
Trachoma	80	155
Strabismus (special tests not made)	1,057	1,092
Astigmatism	43	35
Blindness from injury (one eye)	225	....
HEARING		
Pupils having defective hearing	10,709	8,385
BREATHING		
Pupils having defective breathing	21,026	16,241
Slight impairment	16,908	11,185
Serious impairment	2,873	2,757
Mouth breathing	3,225	2,296
Pupils having adenoids (suspected)	5,389	7,927
Pupils having goitre	1,617	1,562
TEETH		
Pupils having defective teeth	281,263	290,684
Unclean teeth	42,709	41,613
Decayed teeth	236,034	249,041
Gums diseased	2,520	2,438
TONSILS		
Pupils having enlarged tonsils	12,1586	123,528
Slightly enlarged	76,814	77,022
Greatly enlarged	16,144	45,066
Acutely inflamed tonsils	1,328	1,440
CERVICAL GLANDS		
Pupils having enlarged cervical glands	27,740	26,473
TUBERCULOSIS		
Pupils reported as having tuberculosis	774	629
Tuberculosis of lungs	327	283
Tuberculosis of glands	367	246
Tuberculosis of bones	45	46
Tuberculosis of joints	35	54
NERVOUS DISEASES		
Pupils having nervous diseases of grave import	513	434
Chorea	450	349
Epilepsy	63	85
Pupils mentally deficient	434	501
SKIN DISEASES		
Pupils having skin affections	6,157	5,721
Impetigo Contagiosa	220	236
Ring worm	60	67
Lupus	3	0
Eczema	497	510
Acne	438	392
Head lice	4,839	4,319
Scabies	26	74
Other skin affections	74	123
DEFORMITIES		
Pupils having deformities	1,733	1,916
Hunch back	35	35
Club foot	69	61
Curved spine	164	142
Ankylosed joint	7	8
Hare lip	25	29
Cleft palate	139	116
Other deformities	1,294	1,495
MALNUTRITION		
Pupils with sub-normal nutrition	5,578	4,860
Slight	4,760	4,078
Marked	818	782
QUARANTINABLE DISEASES		
Pupils in school that should have been in quarantine	41	98
Chicken-pox	20	98
Whooping-cough	10	72
Measles	3	7
Mumps	3	3
Piphtheria	3	5
Scarlet fever	2	0
MISCELLANEOUS AFFECTIONS		
Pupils having miscellaneous defects	513	383
Asthma	18	26
Defective speech or stammering	297	235
Total deafness (both ears)	186	122
Other defects		

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

PHYSICAL GUIDANCE OF YOUTHS WHO GO TO WORK

THE great majority of boys and girls leave school to go to work at fourteen to sixteen years of age. For the most part these immature youths go into employment without guidance, either vocational or physical. They take the first job that they can get without much regard to their physical ability to stand the strain of that particular occupation. The results are apparent to any observer. The robust boys and girls survive and perhaps prosper; the weaker ones are adversely affected, and many break down. The statistics of mutual benefit associations show an abnormal increase of days lost from sickness by boys from sixteen to eighteen years of age which is largely accounted for by the strain of adjustment to the unnatural conditions of employment.

We have committed the grievous fallacy of treating all youth as being equal in bodily strength, and of regarding all occupations as on a par so far as their physical effects upon youth are concerned. Some industrial managers have already recognized the fallacy and understand fully that it is good business policy as well as social justice to protect the welfare of youth entering employment. Many have refused to take immature youth, while some have instituted physical examinations to select all workers.

Organized society has done little to conserve its young workers except in a negative way by means of prohibitive child labor acts. There has been little constructive effort. When boys and girls reach fourteen or sixteen years of age they are left to their own destruction. The laws in effect say that you must not work at all until you are fourteen or sixteen, but after that it matters not what employment you enter, how long you work, how seriously you overstrain, or whether you can live, let alone thrive, under such conditions.

The country can well afford to keep youth from regular employment until the age of sixteen, and it can equally well afford to see that the efforts for the welfare of the children which are so carefully made up to the sixteenth year shall not immediately be dissipated by a "hands off" policy when the children go to work.

It is far more important that the physical guidance of youth shall be supplied than vocational guidance. In the multitude of related work a boy can readjust himself vocationally without serious harm; but in many cases he cannot repair the damage which a few months or years of harmful work may have on his physique.

The clear logic of the situation calls for medical and health supervision of all children going to work to see that they are physically fit to do the work required; to make sure that no physical weaknesses will be aggravated by the employment; and to help eliminate the processes of industry dangerous to health, or at least to modify the risks. Clearly, such medical supervision should continue until he is safely established in industry. It is nothing short of inhuman to permit either the young or the old to work in places which sentence them to deterioration, disability, or death.

There are certain obvious weaknesses in young workers which are now guarded against in vocational guidance. The girl with a nervous disorder would hardly be employed anywhere in a telephone exchange; the anemic youth would be advised against closely confining inside occupations or dusty trades; and the boy with a weak heart would not be advised or allowed to run an elevator. How many unseen weaknesses afflict the million youths who enter industry every year at a tender age only medical science can determine. State laws ought to make provision for the safeguarding of children by medical examinations.

EDITOR.

THE MENTALITY OF CONVALESCENCE

BY CAPT. E. A. BOTT, MILITARY SCHOOL ORTHOPEDIC SURGERY AND PHYSIOTHERAPY, HART HOUSE, TORONTO, ONTARIO, CANADA*

HAVING now before us a panorama of military medical achievement, consider for a moment the mental attitude of the patients concerned, particularly of cases involving the restoration of function. To present this topic in the form of two questions: first, is a patient's conscious reaction to his condition and treatment a matter of any consequence, as a general rule? Assuming for the time being that patient's attitude is not just what the practitioner would desire, many we inquire, secondly, how should this psychological factor be handled? For instance, may it be ignored or be passed over with a casual word of counsel and encouragement, or should a scientific procedure be adopted throughout, i. e., should we accept that mental attitudes, like other symptoms, show great variety and change; that characteristic attitudes result from definite antecedents, that they exhibit certain uniformities in developing, sometimes pass through crises, and regularly respond to certain lines of discriminative treatment, etc.?

Mental Isolation of the Invalid

The undefined term, mental attitude, is not here used as synonymous with any of the "psychical effects" often alleged to be produced on patients by this or that apparatus or drug with which they are deeply impressed. Such phenomena, half mystically accepted by some practitioners, though without any critical or reasoned view of the underlying principles involved, may or may not be a factor in a patient's general attitude. Nor is the term intended as peculiar to those purely hysterical disorders of the war which, perhaps happily, have compelled attention to psycho-technics that were formerly practised only by leading neurologists and psychiatrists.

Again the term is in no way restricted to that difficult group of cases showing a mixture of physical and "functional" involvement that has demanded the team-play of specialists. A broad-

The mental attitude of the convalescent soldier does not differ greatly from the outlook of a man without a country. Not only has he dropped out of ranks; he is wholly detached from the world he once knew. As a soldier he has acquired a habit of mind which magnifies the circumstance of the moment because the change from civilian to soldier consisted in narrowing down the motives under which he may act. Under the compulsion of discipline he put aside the instincts and motives on which his existence had long depended. Personal initiative and responsibility were taken from him; implicit obedience was demanded, and nothing more. To restore his keenness, to find new incentives and new motives, to overcome apathy and establish desire and initiative, constitute the immediate problem of reconstruction.

lances and ether, baths and massage benches, etc., however skilfully these be employed. The condition in large measure concerns voluntary functions which, having once been part of the patient's normal equipment for the activities of daily life, are now absent or seriously impaired, with the result that his life has shrunk to a degree that can accommodate that loss. To restore crippled functions requires the physiological and mechanical basis, but likewise effort, insight, and perseverance by the patient. Formerly these functions operated with ease; now the habit of inaction or of substitution is ingrained and stabilizes a "set" of maladjustment.

In the Depths of a Man's Nature

To overcome the latter is a course of high resistance that is neither natural nor congenial. For this reason a purely impersonal technic is not adequate. The very depths of a man's nature must frequently be reached and stirred in order that he play his part, for without desire and determination we look in vain for effective action. The motives which are fruitful are as various as human nature is complex, and the selection and application of them cannot well be left to a chance environment. Treatment must be fitted to the man as well as to his ailment. The opposite point of view might be illustrated by a type of political economist who in his endeavor to analyze rents, wages, prices, etc., sees not the folks whose deepest instincts give such concepts life. Is the thera-

*Read before the Institute of Medicine of Chicago, May 1, 1919.

peutist safe from the same pitfall until he sees a patient as more than bone and blood? Crude though the family physician's psychology may be, it has a power which specialized medicine can profitably develop and refine. Now, when modern medicine is aiming to carry its benefits of prevention and cure into the realm of organized industry, the time seems fully ripe to stress this point of view in medical education and practice.

The Art of Interviewing

This is not the occasion to present a detailed analysis of the mental attitudes of either military or industrial patients but a few points and illustrations rather arbitrarily selected may serve to indicate certain problems and remedies which our military experience has suggested.

The setting for diagnosis of a veteran's point of view is important. One's mental outlook is not merely a personal possession, but a sensitive, living organism with a life history and unlimited potentialities. It may be guided more frequently than driven. The object of an interviewer is not so much to gain knowledge as to leave an impression, and if possible an inspiration. Interviews should, therefore, be individual and characterized by brevity, frankness, confidence, and a sympathetic understanding conveyed by tone and manner rather than by words. Labored questioning on civilian history and service record serve usually only to confuse, chiefly because the man is accustomed to be paraded and given his report or receive instructions. Facts which his papers would reveal at a glance need not be rehearsed; it is more impressive for the interviewer to show the possession of such knowledge than to elicit it. Man to man contact, eye speaking to eye, has in it a power which should not be distracted by the filling in of forms. From this standpoint the initial interview is a first and invaluable step in treatment. With the constructive phase of the interview we shall deal later. Our present point is the importance of what may be described as the unspoken communication. This does not imply pauses of silence, but it does mean the exercise of a fertile and appreciative imagination which reads accurately the background of the patient's past. This fact is impressed upon the patient by the nature of the program outlined for him.

In the training of civilian workers for functional re-education we have been impressed by the advantages of dwelling on certain features of the veteran's mental outlook. That the veteran is different from the civilian is immediately recognized, but failure to understand how and why is disconcerting and invites indulgence in sentimentality. On the other hand, to give students

a critical curiosity about this side of the case stimulates close observation, assists in adjustment to the needs of the individual, and adds immeasurably to the interest in the work.

This pedagogy must pierce below generalities to a study of individuals. The attitude of a patient depends not merely on what he was before enlistment, but on what branch or branches of the service he has been in and the conditions and length of his service and hospital experience. The outlook of an infantryman differs from that of an aviator, as a counter-battery artilleryman's does from that of a naval cadet off a submarine chaser. A patient's attitude is not simply a product of his hurt or of his hospital environment, but of his whole service. It is habits of thought that make problems of re-adjustment, and for this reason the ultimate cause of "hospitalization" should be sought not in hospitals, but in certain unavoidable features of combatant service. This may be illustrated in an abstract way from the experience of the healthy infantry recruit.

A Narrowing of Motives

Whether he be a draftee or a volunteer, his first job is to learn to be a soldier. To say that this means he loses his individuality and initiative is less accurate than that it means a narrowing down of the motives upon which he may act. "How little," writes a soldier from France, "the outside world understands what our lives are like. In the outside world there are standards of freedom and politeness; in all personal matters a man has the power of choice. He is at liberty to make or ruin himself. He washes if he so desires; if he prefers to go dirty he does not wash. Within reason, as far as is compatible with the earning of his daily bread, he sleeps as long as he wants. . . . With us, everything is reversed. We grow mustaches under Army orders; we crop our hair to please the Colonel. We have no areas of privacy either in our bodies or our souls. We rise, sleep, eat, wash, when we are commanded. We are physically examined, physicked, pumped full of antitoxins, and marked off to church parade to worship God without our wishes being consulted. . . . We cannot give notice to our employers; we have no unions, no means of protests. To be always cheerful and smiling, the more cheerful and smiling in proportion to the hardship is a duty for the performance of which we expect no thanks. . . .

"Success in civilian life demands foresight, judgment, decisions that involve responsibility. All this must shrink to the vanishing point. In ranks I do as I'm told. I do not think what I am to do, but I must think what I am doing. I am

not a good soldier until my critical instincts are inhibited at least to the extent that they do not feel outraged, nor plead for indulgence because of the limitations of my rôle. Nevertheless, room for initiative remains in the giving of prompt and accurate obedience, neither understepping nor overstepping the mark, expecting neither gain nor glory. Precision requires concentration and restraint, and for reward I may cultivate such chronic good humor as I will. This contraction in motives is a moulding process that requires time and adaptation. It is more disagreeable in the learning than when accomplished, but the unlearning seems most difficult of all. With the narrowing of motives necessarily come changes in values, some more significant than others.

Subtracting the Personal Equation

"The personal equation must be adjusted. In civilian life we each adopt a particular point of view to all whom we meet: our banker, our grocer boy, our member of Parliament, our doctor, our aunts, the stranger we pass. We carefully classify and appraise our social environment for what it means to us, and our daily routine becomes a dove-tailing of reactions appropriate to the great variety of our associates. On enlistment this grading of associates is ironed out. We each have our number; we think together, act together, play together; we belong to the dead level of Tommies. Beyond this are no distinctions of person, only of rank, which is for the most part a philosophy of clothes and an appreciation of idiosyncrasies.

"The limiting of responsibility has far reaching effects. In ordinary life our tasks rarely stand isolated; they blend with one another and with the activities of our fellows. Under such circumstances the attainment of results is more significant than the detail of the means employed; in other words, experience counts, discretion is expected, economy in time and effort is approved. In the army tasks are sharply focussed. To concern oneself with more is to be guilty of an offense. Instructions mark the limit both of responsibility and of power. Time means nothing. Ultimate results are not your concern. Explicit obedience to superiors to the last detail is at once your duty and salvation."

This limitation of responsibility the soldier learns too well, he even achieves skill in shifting to others the small responsibility he has. The fruits of this planting ripen during convalescence. His active duty has then ceased, but his attitude of dependence remains and is seen in his cheerful resignation to passivity. He is overwilling to

be managed from without, not from within, even in the matter of improving his condition.

Many of the major moral forces and behavioristic reactions which serve to stabilize society are inhibited or reversed in active service. Habits that make for conservation of life and have been a lifetime in building are changed into a will to risk or take life. Discipline and common sense are not always sufficiently powerful substitutes for the sanctions of the home, the church, or the club. The horrible sights and acts, the verminous nights, the moments of uncontrollable emotion, of fear, disgust or passion, the swift partings, such things which deeply burn,—we who have not been there can know nothing about even though our pulse may quicken over some bit of realistic verse from the trenches. The oscillation between extremes, for example, between periods of work of heart-breaking severity and rest periods of comparative idleness, is probably more of a tax on stamina than the deadliest monotony of industry can ever be. It is not during action but in billets after action that hysteria usually incubates. Too great contrasts inhibit control. The degree to which such experiences reduce the power of re-adaptation to the civilian outlook is in some cases probably considerable, though always difficult to gauge.

Unlearning One's Army Habits

True to the laws of life and growth, the human mind accommodates itself to a change in mental environment. Characteristics which formerly were important tend to disappear and others are acquired. If the change is rapid and extreme in kind as on entering military service, the adjustment is more marked. It is the new "compensation" factors that become dominant. They form the retaining walls in a new level of mental equilibrium; they are the foundations of successful training and of high morale so long as the environment of active service continues. Should a different setting arise as during convalescence or at discharge or, more generally, when the armistice was signed, the equilibrium is again disturbed. If, for instance, it be a question of re-entering civilian life, the problem of adaptation is two-fold, *viz.*, the reinstating of discarded motives and the reduction of those which have sustained him through the hardships of service. The re-learning is here easier than the unlearning because the latter motives are founded on the most primitive and strongest instincts in man.

Perhaps the most dominant compensation factors in military life are those instincts which make possible and stable a gregarious male existence. One has but to reflect on the satisfaction

with which we seek the seclusion of our home or club after but a few hours in the company of our business associates to realize what adjustments would be required for us to live congenially elbow to elbow for months on end with men not of our own choosing. These adjustments are both discriminative and assimilative. A man who is not in harmony with the group has to be discriminated against as a menace. He is ostracized in countless ways by his fellows. If the satirical remark or practical joke are not sufficient, plain words or forcible action must follow. What in ordinary society might be a harmless eccentricity becomes an intolerable nuisance or danger in gregarious life. The herd cannot escape from the offender; it must, therefore, cure him. This is the negative or protective phase of adjustment.

The Root of *Esprit de Corps*

The positive or assimilative phase of the gregarious instinct is that comradeship of companions in arms which is as old as war. It is not based to any large degree on the luxuries or pleasant things of life, on any similarity of tastes or hobbies. It is not a partnership, there being rarely anything to apportion. Its external side is simply a common inheritance of hard marches, wet trenches, good gourmets, and, withal, cheery smiles. Fundamentally, this comradeship rests on the feelings and aspirations of a whole body of men who have a common and hard lot, and who know that while they may fall before it one by one they cannot rise above it except together. The feeling is not one of liking the task; the aspiration is only to see it through. Every good officer knows that this factor is a corner-stone in the structure of *esprit de corps*. With this feeling strong within him no can hold back when his comrades go forward.

Nevertheless, though this comradeship has been vital to the Army, helping the men stand shoulder to shoulder in the trenches, its usefulness is not so evident on return to a civilian setting if it tempts men to sit side by side on our park benches when work is to be had. To modify a strong instinct on which one's existence has long depended is surely as difficult as to master a trade. The quality of human nature which produces the companionship of the trenches likewise produces veterans' associations and trade unions; it may be guided, it cannot be repressed.

Two instincts of expression which gregarious army life fosters and is for are fighting and playing. The one is an unpleasant necessity, the other a pleasurable substitute or equivalent. That the play instinct, as expressed in physical sport, seems spontaneous in our Army and is suggestive

of a fruitful means of stimulating physical action in crippled men whose fighting days are over. There is also a current of playful humor that flows near the surface in the Army. It may be shallow, because a herd is never intellectual, but it is expressive, and is one of the ways of relieving the feelings and of passing the time congenially. In this connection we should not fail to appreciate the extent to which poker and craps helped to win the war.

Mentality of Military Convalescence

We have referred to some factors in the soldier's mentality, whether he was physically incapacitated or not, which must be reckoned with in rehabilitation. May we now consider certain influences these produce in the outlook of the wounded man and then formulate the problems and remedies for the peculiar mentality of military convalescence?

Until the soldier falls out his existence as an individual is nil, then all of a sudden he becomes important. He is no longer told what to do; he receives attendance, others act for him. His companions have gone forward, he goes back. No longer has he to keep pace with anyone, he is out of the race. This is a complete change of setting and produces a corresponding mental reaction. Realization of his "blighty" is the occasion of profound relief that knows neither reservation nor misgiving. The positive forces fall away without compensation. Unlike the civilian casualty who feels the distressing responsibility of provision for his family and himself, the soldier is aware that provision is assured. He calmly waits for what the future may bring forth.

A Slump in Mental Tone

The initial and most significant point in his mental adjustment is this unresisted slump in his "reaction of effective capacity." Whether his hurt be grave or slight, there is now no appeal for action either from without or within. From a circumstance wherein he strained every nerve to fall not short, he has fallen suddenly to a level where no goal exists. This slump in will is, of course, not peculiar to the war casualty; it may be seen on every hand in civilian life; in the school child who loses his place through unavoidable absence; in the laborer who loses first his place then his inclination to find another. But in the soldier, owing to his mental antecedents, the slump is more striking and the restoration of positive values more difficult. A new outlook has to be created, perhaps in the face of the fact that it was not a healthy thing to get well before the armistice. To restore his keenness, to find a

motive appropriate to his state of mind is then the immediate problem of reconstruction.

The soldier's habit of not assuming but avoiding responsibility inculcated in his days of service finds full indulgence during convalescence. He takes his treatment with philosophic complacency. He is more satisfied to be worked at than to help himself. The remedy again lies in altering the point of view.

Danger of Mental Depression

The convalescent Tommy is surely the most impressionable of men. Since enlistment his sphere of action has been narrow, with little variety or complexity. Situations which formerly he would have carefully weighed he now interprets only with himself as center. Not understanding the mysteries of medicine, he has more than the usual reverence for the opinions of his medical adviser. The latter, being usually at pains not to enlighten him, leaves his uncritical imagination free rein. A doctor's prestige rests partly on a patient's vague alarms, and the fears of the military patient incline toward pessimism. He interprets the most casual and even irrelevant remarks as pertinent to his own case. He regularly selects only the unfavorable indications and the resulting picture is gloomy indeed. If he quotes you an earlier prognosis it is one that harmonizes with his present view and is usually attributed to an officer of wide reputation who is at least two higher ranks than yourself. Such an attitude is not morbid, but a natural outcome of his service experience; it is an attempt to rationalize his passive conduct. The remedy must be through motives that are sufficiently powerful to appeal.

Though the soldier's pessimism is self-centered, he does not keep it to himself. The gregarious habits of active service are a suitable soil for the growth and spread of his deepest feelings. Unless careful counter measures are applied a depressing atmosphere of convalescence becomes the prevailing tone of the hospital. The patient sees little to hope for and applies frequently for leave or even for discharge.

When a patient does show interest about his own improvement not infrequently it is a misplaced interest. He shows a keen belief and confidence in some irrelevant apparatus or technic which is not available, and at the same time he is not inclined to be a partner in what is being done for him. If he is being treated with a galvanic battery he feels that a certain violet-ray machine which he once saw is what is required. Or, if his amputated stump is weak from want of graduated exercise so that he cannot operate his artificial

arm, he complains that the latter is useless. He knows, too, of a high priced American arm that is satisfactory; the Canadian government cannot make proper arms anyway; he hands in an application for leave and intends to cross the line and buy one.

The mental mechanism in this attitude is neither morbid nor unusual. We tend to ignore, to put away, and forget what is highly unpleasant. For him the unpleasant is the manifest disability which stands between him and comparative health. He does not face the facts. In turning aside from his crippled function he ignores or belittles the measures which might bring relief. Instead he pins his faith to something which is just over the horizon or always falls short of being of any practical use to him. This becomes an imaginative construction which he amplifies and garnishes to his liking, and in proportion as his false ideal grows so does his inclination to help himself in any practical way decline. A danger therefore in any program of treatment based on the principle of helping a patient forget his disability is that it aggravates this inclination toward self-deception and the way of least resistance which is already a chief difficulty that he has to combat.

Principles of Treatment

Such factors as the above, the slump in desire for accomplishment, the resignation to circumstances by the individual and the group, the rationalization against self-help, and the forgetting of the real issue in lieu of a false one—these may serve to indicate our problem. Not all of them appear in every case or in like degrees and the attitude varies as the physician condition changes, but observation of 1,000 cases has satisfied me that they play an important rôle.

In referring to principles of treatment as relative to the mentality of convalescence it is assumed that the medical, surgical, and passive therapeutic needs are being attended to, and that active functioning preliminary to more complete rehabilitation is required. The program should be fitted to the patient's point of view as well as to his physical condition. "The invalid," says Prof. E. J. Swift in his *Psychology and the Day's Work*, "who waits till he feels able to work will never begin." The same may be said of the beginnings of functional restoration. Let us accept further that the test of effective procedure is two-fold: first, to reduce his disability of useful function to a minimum in the least time, the claim for as quick results as medical safety permits, being not merely economic but because success is the best stimulant to a patient's effort;

second, and so far as possible, simultaneously to restore his self-confidence to the maximum and to direct and fit him to an objective in civilian life.

The value of curative occupation is now widely recognized on both sides of the ocean. It is properly argued that, man being a manufacturing animal, from the day the patient owned his first jack-knife, and even earlier, he has been making things. Therefore, develop the motives of making with the infinite wealth of originality that that field opens. Interest the patient in things, jobs, objective results. Let his hands be occupied and his mind will be taken off himself. To those who are following military work the validity and results of this principle need no argumentation.

But human nature is very complex and may be approached from various angles. Visible products of his hands are not the only things that stir in man the conviction of accomplishment. If it is instinctive to mould clay into marbles, it is just as instinctive to play marbles—and more energetic. The motives of *doing* like those of *making* have unlimited possibilities of appeal. The problem in convalescence being to overcome apathy and establish desire, it is not so much what he does as the source of his effort that matters. In this sense the merit of a method is its fitness to touch the springs of action. It is because the motives of individual expression have been repressed and those of group effort have been made dominant in the service that through the latter curative action may be stimulated.

Mental Rehabilitation

In this way it is possible to approach the patient's disability and attitude directly and present a constructive program of applied exercise. In the initial examination and interview, pains are taken to have him see the exact deficiency of function in range and in strength as compared with the normal. The problem that stands between him and health is then squarely before him. Challenge him to undertake the task and you arouse his fighting spirit. He volunteers. He is told that he will be shown what to do and how to do it, but that he must do the work. It is impressed on him that the object is to improve his condition, and he is warned that he will get out of the treatment just what he puts into it, nothing more, and that his progress is going to be watched. Few patients indeed fail to respond with their heartiest cooperation. Should this occur the reason lies still in the mental attitude and must be sought out and met. Re-examination and systematic supervision are as important as the initial interview in cultivating the proper attitude.

A complementary side of this direct treatment

lies in the proper equipment and trained personnel to administer graduated exercises suited to various disabilities. With the details of these methods, the progression through muscle-function training, higher coordination and collective gymnastic work we need not be concerned. Suffice it to say that the aim throughout is to combat the attitude of invalidism by setting precise tasks, not minimizing difficulties, and appealing to the strong motives of mastery, of self-competition, and group competition. The results have been most gratifying.

To sum up the principle of the direct method as a remedy for the mentality of convalescence: for each negative element of the latter is substituted a positive one based on powerful emotions which the veteran knows. Instead of allowing the patient to relinquish responsibility he is forced to assume it by having him measure up to expectation in working out his own salvation day by day. His extreme suggestibility is taken advantage of to impress a constructive program stimulated by the instincts of sport and competition. His false idealism which would forget the facts and look for relief to something outside or beyond reach is banished by converting him to an enthusiastic use of practical means at hand. Lastly, his strong gregarious habits are utilized to cultivate an atmosphere of cure rather than of convalescence. Establish the conviction of improvement in individuals and it will spread through a whole patient population; then collective treatment may complete the process.

The time has probably not yet come to draw final conclusions regarding the relative psychological efficacy of different methods of treatment during convalescence. Though the war experience has been large the opportunities of careful comparison of distinct methods, conducted to the same end and under similar circumstances have been few. One's opinions consequently reflect chiefly one's own practice. It might be objected, for instance, that in the direct method of functional restoration men are asked to concentrate on insignificant and unmannish tasks, and that these will only emphasize the disability in their own eyes. But the criticism reflects the standpoint of the well civilian rather than the military convalescent. In the struggle for improvement small things to him loom mountain large, and that which impresses him is what he does accomplish rather than what he does not. On the other hand, the direct method, being intensive, should be tempered by occupation and objective tasks.

Among the problems of the future therefore will be the proper balancing and interrelating of technics that will be most appropriate to convales-

cence in the widest sense. The mental attitude of patients in war service is complex, but is immeasurably simpler than the points of view met outside the service where patients of both sexes and all ages await similar assistance. To find the facts about the attitude of workers in in-

dustry, for instance, is a vital task today that is little more than commenced. If medicine, therefore, sees new service in the field of industry, ought not the psychological factor to have a place in its program and an influence on its therapeutic procedures?

SOCIAL SERVICE FOR THE CHRONIC

BY S. WACHSMANN, M.D., MEDICAL DIRECTOR, MONTEFIORE HOME AND HOSPITAL, NEW YORK, CITY*

THE relationship is so apparent, and its operation so constant and universal that it need hardly be emphasized that among the causes of poverty and dependence, sickness takes a very prominent place.

Both laymen and physicians are in the habit of dividing diseases into two groups, acute and chronic. However, the dividing line is not as distinct as one might imagine, because very often the acute stage of a disease gradually passes into a chronic, lingering form; or a lasting disability may be the result of a violent, acute disease. Only a few ailments present from the beginning the characteristic symptoms of chronic disease—slow development with remissions and aggravations, terminating in more or less complete disability.

The effect of the two groups of diseases upon the social and economic life, which is of paramount interest to the charity worker, shows marked difference.

Two Problems Involved

Two distinct problems offer themselves in this respect and have to be dealt with accordingly. The acute diseases, which, for our purpose, must include accidents, have one feature in common, *i. e.*, suddenness of onset. They befall the individual and the family like a thunderbolt from a clear sky.

When an acute illness makes its appearance in a well established family which possesses a fair amount of economic reserve, the actual physical suffering and, more especially, the mental anguish are great. Considerable disruption and disturbance of life's routine takes place; but, inasmuch

A TASK TO FULFILL

The parties to the obligation:

- The chronic invalid.*
- The social worker.*
- The physician.*
- The invalid's family.*
- The sanatorium or hospital.*

The obligation:

- To secure to the invalid and his family the fullest benefits of modern medicine, social service through family co-operation, and industrial therapy.*

The task:

- To lighten the economic weight upon the home that shelters an invalid.*
- To alleviate the distress occasioned among other members of the family.*
- To supplement home facilities for the invalid's care.*

as acute diseases generally run a short course which can be measured by weeks at most, the financial balance is not seriously upset and, after a little enforced economy, the family finds its level again without the aid of charity. But if such a family happen to be just on the borderline of economic independence, when an acute sickness befalls, in particular, the mother of several children and, in some other exceptional

cases, the charity worker may have to step in and straighten out the upset household.

Whether financial aid be required, district nursing, or temporary child care be needed,—in all cases of acute illness in a family the aid must come immediately; there is no time for prolonged investigations; help must be given speedily, fully, or it is of no avail, and even from an acute illness lasting damage may follow in an economic sense. Fortunately, the social service to be rendered in acute illness is rather simple and can, perhaps, best be summed up in a few words; hospital, doctor and nurse, food, fuel, and money. Some or all of these items are required and have to be supplied.

Much more complex is the situation in cases of chronic illness. Here the economic importance for the family by far outweighs that of the acute cases. Speaking of the wage earner first, it goes without saying that when the loss of wages extends over months and years the problem is entirely different than in the other case, where it is a question of weeks.

The next point is that of disability and need of care and treatment. In those cases in which the

*Read before the National Conference of Jewish Charities, Atlantic City, N. J., May 30, 1919.

chronic invalid is helpless, the family not only loses the income from wages, but another member of the family has to devote part or whole time to the care of the invalid, and the income of a second wage earner is either lost or considerably diminished. The extension of such conditions over prolonged periods naturally tends to affect the income situation of the family to a very serious degree.

The Invalid a Family Handicap

Even in cases of children, a chronic disease upsets the life of the family in a most unpleasant way. Aside from the financial standpoint, the presence of a chronic invalid in a family seriously interferes with the daily life in a great many ways. Assuming, for instance, that a chronic invalid has an annoying cough, a gloom would be cast over the other members of the family and visitors will quite often keep away for fear of infection.

If the chronic ailment is a very painful one, the constant groaning, crying, or other expression of pain, according to temperament and disposition, will not add a very cheerful color to the daily life of the family. The working members of the family may be disturbed in their night's rest and gradually lose in their efficiency and bread-winning capacity. Furthermore, the prolonged woe-riment of the mere thought of having an invalid in the house will weigh the mind and cannot help but affect all the members of the family, whether they are at work or at play.

Common Causes of Chronicity

Chronic invalids may suffer from any one or several of the following afflictions:

Diseases of the nervous system, that is, the brain and spinal cord, such as one-side paralysis, shaking palsy, locomotor ataxia, and other organic diseases affecting the central nervous system and the peripheral nerves.

So-called "functional nervous disorders," like hysteria, neurasthenia, and psychasthenia are also referable to the nervous system, although we do not know the exact nature of the lesions as far as the brain and the spinal cord are concerned.

Chronic diseases of the joints, such as rheumatism in all its varieties, gout, etc., are other causes for chronic disability.

Bright's disease, diabetes, and such diseases of the heart-muscle or valves, as well as the hardening of the arteries, and other diseases of the blood vessels are disabling more people at present than ever before.

Non-infectious diseases of the lungs, such as asthma, emphysema, and various types of chronic

bronchitis will prevent people from earning a livelihood and make the afflicted a burden to the family or community.

If also are considered cancers and other malignant tumors which, in their development, extend over a more or less prolonged period before they lead to death, there will be included the majority of chronic diseases, with the two exceptions of consumption and insanity. These two diseases present such distinct problems that they have to be considered separately and they cannot be disposed of under the general heading of chronic diseases.

We might mention the chronic diseases of children, although one may say they are no different from those of adult life, which is quite true within a certain limit; but there are some special features to the problem of the child chronically ill which will confront the social service worker who is engaged in child care. It would, of course, be beyond the limits of this short paper to dwell upon all possibilities of children which may and will concern the social worker, but the two largest groups, those made up of cardiac children, and the many victims of infantile paralysis, are chronic ailments which make very heavy demands, and the discussion of these will serve as examples of chronicity in children.

Problems of Invalid Children

It goes without saying that whenever there is any complication of a medical nature, that is, whenever disease is at the bottom of a case, the first step to be taken by the social worker is to get in touch with the proper medical agency, whether it be a dispensary, a hospital, or individual physician, for the sake of insuring the proper diagnosis and treatment.

In the case of the cardiac child, the social worker's main duty consists in preventing decompensation after the child has been discharged from active treatment. This is done by instructing the parents as to what is most likely to endanger the child and, therefore, is to be avoided.

These children should, first of all, live on or as near the first floor as possible because climbing stairs is one of the exercises that makes the heaviest demand on the leaky little pump called "heart." Next in importance is the child's supervision in school and at play, and an occasional presentation for a physical examination. Diet is not of paramount importance if one keeps in mind that overloading the stomach also puts an extra load on the heart.

The other large group of children with chronic ailment represents those little patients who have survived infantile paralysis, with one or several

extremities weakened or totally paralyzed. Here also the best friend of the social worker will be the physician and nurse; but there is enough to do for the social worker to help the poor little cripples. The family needs to be impressed with the importance of regularity in the treatment; transportation has to be provided; the child must be educated; and, finally, recreation and amusement must be provided for so as to make the children as happy and comfortable as possible.

Medical Supervision Essential

The care of the adult, also, will have to start with the actual medical side. After the physician or dispensary has notified the social worker as to the necessary treatment, it is for her to see that treatment can be carried out financially and otherwise. If climate is considered the essential factor, the social worker will try to arrange for opportunities to earn a living in a suitable climate, and a great deal of correspondence may become necessary. If damp dwellings appear to be the cause of disability from chronic rheumatic afflictions, naturally the family will have to be moved to more suitable quarters. If under-nutrition makes the invalid anemic, this can be removed by providing supplementary food. Cooperation with the physician, of course, is indispensable in all these matters, but the deciding feature in all the problems concerning the chronic invalid outside of the institution will be the financial element.

As stated before, the economic burden placed upon families by chronic diseases is the partial or total loss of wages of the patient and that of an additional member of the family. To make up for this loss, or to minimize it, may be the very difficult task of the social worker.

Here a sharp distinction is to be made between those who are helpless to the extent that they are bedridden and have to be fed, and those who are partially disabled but under favorable conditions can be taught to earn at least a part living. In the first group the social worker will be confronted either by a situation in which the only solution is transportation to a suitable institution, or in some cases, district nursing may relieve the incredible hardships which the presence of a helpless invalid inflicts upon the family.

Facilities Requisite for Care

The ordinary dwelling facilities were not intended to house such invalids. They require a certain floor space, cubic space, ventilation, cleaning and bathing facilities, and the absence or insufficiency of such provisions creates the most unsatisfactory conditions. There are, of course,

not enough institutions to offer a bed for every helpless invalid, and the social worker will have to tax her ingenuity to ameliorate conditions with the facilities at hand. The family must be told that the invalid must not be hidden away in the darkest and smallest room, that the parlor is barely good enough for him; the importance of soap and water, and of fresh air, must be emphasized over and over; hospital supplies must be obtained for the family until finally it is possible to have the invalid admitted to an institution, where the proper care can be given.

More hopeful is the situation in such cases where the invalids are only partially disabled, where they can sit up in wheel chairs, or limp about with the help of canes or crutches, or where there is enough mentality left for occupation or utilization.

Psychic Factors Add to Difficulty

Every case of chronic disease is complicated by a condition which may be called neurasthenia for lack of a better name for the condition. The change from the normal life to that of an invalid produces in the entire make-up of the chronic invalid results which cannot be explained by physical changes only. Chronic invalids become irritable, morose, sentimental, and show other psychic changes. The cure for these changes involves the whole subject of occupational therapy, a phase of the matter which it would be impossible to even outline within the scope of this paper.

Of still greater benefit it will be to the patient if a way can be found to convert all that is left of his earning capacity into financial returns. This great problem of reconstruction which is confronting all the nations of the world now after the war should call our attention to the fact that the problem is as old as industrial life. We have had with us from time immemorial those who for one reason or another have fallen by the wayside but who are not entirely ready for the scrapheap, and in whom there is enough of an earning capacity left to be of use for the double benefit to themselves and to the community. The social solution of this problem offers almost insurmountable obstacles and, in all probability, there is more than one solution.

Samaritan Quarter a Solution?

My work, which has been concerned with the chronic invalid for the last eighteen years, has compelled me to seek a solution, because I have fully realized that it will never be possible to build institutions large enough to house all chronic invalids. One problem most vital in dealing with

this matter is the question of transportation. The inability to travel even short distances has been a great handicap to the chronic invalid. It is the entering and leaving a house, the question of streets, the climbing of stairs, which most invalids cannot do and which prevents them from successful competition with the able-bodied workers. No amount of education, training, or specializing will eliminate this great handicap, and the eternal question in the case of the chronic invalid, as well as the rest of the industrial world, is to bring together the work and the worker.

My own individual solution would be the establishment of a Samaritan quarter for each community, large or small, where all families could gather who have chronic invalids with them, or who are willing to take care of them under the most favorable conditions. The feature of this Samaritan quarter would be that the main streets for the traffic of vehicles would be depressed below the surface, the roads for pedestrians, or wheel chairs, on a level with the first floor;

the houses in reference to doors, floors, and bath rooms would be so constructed that wheel chairs could negotiate them. In this Samaritan quarter factory building should be located which, by similar modification of construction, could be made suitable for the employment of cripples.

It has been my misfortune that my field of activity is the largest city in the country, and that the creation or construction of a Samaritan quarter large enough to take care of the needs of the Jewish community of New York City would be an undertaking too big to be handled by any existing agency of private philanthropy, or by any individual. A smaller community, perhaps one of the many cities whose charities are represented here, might find it advantageous to try the solution suggested.

Full justice cannot be done to the huge problem of social service to the chronic until it is considered in all of its phases by the proper agencies and handled by society as a whole as perhaps the greatest problem of philanthropy.

HYGIENE IN MARSHALL ISLANDS

The influence of the war in stimulating the public conscience of every nation to the need for attention to matters of public health, has spread even to the small countries and backward places of the world. In the far East the war has created interest in preventive medicine, as

medical men have learned new methods and are applying their new knowledge. To the credit of Japan, it may be said that this nation is doing much to promote modern ideas of health protection among the island peoples of the orient.

The photograph reproduced on this page shows a Japanese



Dental Clinic on the Marshall Island. The photograph shows a Japanese dentist working in the open air on a native and several patients awaiting their turn. (By International Film Service Co.)

in other countries. The returning soldier who has fought with the Allied nations has learned the methods of army medical officers in combating sickness and disease. The

ese dentist in the Marshall Islands conducting an open-air clinic. He has a native islander in the chair and several others are waiting for treatment.

STAMMERING AND MODERN MEDICINE

BY ERNEST TOMPKINS, M.E., PASADENA, CAL.

THE beneficent possibilities of modern medicine may be seen from consideration of an illuminating example. Ever since the race began to raise itself by means of speech above its purely animal nature, that speech has been beset by the mysterious disorder, stammering, both the affliction and the mystery of it deepening as civilization advanced. What will modern medicine do for this affliction?

A broad survey of the question will disclose the fact that all over the world this impediment in the speech prevails to the extent of 20 per cent of all children. The affection makes its appearance soon after they begin to talk, but subsides in a considerable percentage, especially in the girls, but persists in from 1 to 2 per cent of the boys. The usual efforts at correction are of very doubtful utility. It forms a serious handicap to approximately one out of a hundred of the bread winners and defenders of the race; because of it they are unable to do their part in either capacity, but are haunted by a wretched dread that embitters for them what little participation they do have in social life.

The Affliction Becomes Intolerable

The loss to society due to this universal affliction is no longer tolerable; it should not be allowed to grow into a life affliction in so large a percentage of the human race. That so much effort has been expended on less serious afflictions and almost none on this severe malady shows a lack of appreciation of the magnitude of the problem. It is to the discredit of science that for thousands of years almost nothing effective has been done toward relieving the sufferers, and that most of the efforts made have been misdirected.

Could there be any greater inefficiency than to allow so tenacious a disorder to persist for years, and then experiment with cures of unproved efficacy, cures which perhaps involve

30,000 STAMMERERS MAY BE SAVED ANNUALLY FROM AFFLITION

Stammering is an affliction that can be controlled and practically wiped out of existence in a couple of decades by the psychic control of what is a psychic malady.

Society should be kind to the stammerer, ignore his obstruction in speech, and permit other means of communication. If stammering is to be mastered among the 30,000 children affected annually, the psychic dread which aggravates the disability must be removed. How this may be accomplished is here explained.

the payment of fees out of the power of most of the victims to pay, and cures which require a determination the average individual cannot maintain, or an environment which he cannot afford?

Former methods for the treatment of stammering practically constitute a *carte blanche* to run its course. Where breathing and articulatory exercises are employed, the treatment may really intensify the

disorder. It is like pouring oil on a conflagration which it is wished to extinguish. Preventive methods will step on the spark and avoid the conflagration.

To be truly scientific, there must be no hazarding of guesses, no plausible propagation of untenable views, no temporary expedients disguised as cures, no obstruction of the truth for profit; but full consideration must be given the facts, independent of any motive but the benefit of the race, and a steady progress from the good to the better, until the best is attained.

Early Correction Most Promising

Corrective methods should begin with the inception of the disorder. The working theory which best conforms to the facts, first published by Liebman¹ and later fully substantiated in this country, is that in his fright the stammerer consciously obstructs his speech. The rational remedy is to stop the obstruction. Prohibit the stammering. Is that a cure? No; there is no cure for stammering. There never was and, until undesirable memories can be destroyed, there never will be.

The prohibition of stammering is a means, the only means, of correction. It is efficacious at the inception of the disorder, but becomes less so the longer the disorder has run, until in maturity and advanced age supplementary means must be used to obtain anything like satisfactory results. The correction of the chronic stammerer, how-

¹ Liebman, Dr. Albert: Die Psychische Behandlung von Sprachstörungen.

ever, all important as it may be to the individual sufferer, is of zero importance to the race. Early effort where extirpation is possible is where the work should be concentrated.

It may be asked if prevention does not supersede early correction. In the case of most afflictions it does, and to some extent it comes first in the case of stammering. Some such causes as imitation, association, repetition of words, intentional frights, are avoidable. The majority of causes are avoidable.

Psychic Distress the Cause

Anything which induces conscious interference with the newly acquired speech may become an inducing cause. For instance, a little boy eats a lot of green apples and has a convulsion. As he improves his speech does not recover promptly, so he makes a conscious effort to speak. He wants to say: "I ate green apples." He opens his mouth to say, "I," and does not close it; the "I" is abortive. He thinks that his sickness has affected his speech, and makes another conscious effort, this time to say, "Mother." He closes his lips to make the "M" and holds them closed. One has only to make these efforts to find out that they obstruct normal speech. The boy is thrown into a panic, believing that his speech is affected, and he persists in his mistaken efforts. His futile attempts to speak attract censure or other embarrassing attention, which in turn prompts more and stronger efforts which serve only to increase the affliction until it becomes a fixed inhibition. Frights, injuries, exhaustion are of such frequent occurrence among children as to account for the wide prevalence of this distressing malady. It follows that early correction is the principal means for its extirpation.

Correction Is Simple

One important lesson that the history of stammering teaches is our popular misapprehension of science. Science is simple, not complex. Its very purpose is to develop conceptions so simple that they are not generally apprehended. It is true that complex methods at times need to be used in the development of the simple conceptions, and the complexity of methods may be responsible for the popular idea that the incomprehensible is the scientific.

The pursuit of this mistaken idea in the field of stammering has resulted in a cloud of confusion that is unparalleled elsewhere. In its darkness truth is indistinguishable from error, and injury from relief; its pall enshrouds our universities, our philanthropic societies, our government bureaus, and paralyzes effective action,

so that 30,000 children are annually doomed to live their lives in disability and misery on account of this preventable affliction. At the same time we are shouting "child welfare" until the welkin rings.

Fear Causes Trouble to Persist

The view that stammering has its cause in psychic inhibitions is the only one that is tenable. The habit is persisted in because of the speech difficulty itself. The inducing cause passes away. The problem that speech correction has to deal with is the fear of that difficulty. The affliction is intermittent; fluent speech alternates with impeded expression. The fluent speech dissipates the fear; the impeded speech brings it back. It follows that if the impeded speech is not indulged in, fluent speech will gradually remove the fear from memory, and that constitutes recovery.

But how is the stammerer to talk if he declines to stammer? Will he not be mute? By no means. The stammerer is an adept at hiding his difficulty. The public never sees, that is, never recognizes half the stammerers. They wait until a fear is dissipated; they substitute words; they make signs; they write. When the author was stammering severely, he lived for several weeks in a family who never heard him stammer. The malady was cleverly and consistently concealed, but at what a strenuous effort can only be imagined.

Society Makes Men Stammer

Herein lies the sad part of the affliction. The stammerers would all recover if society would allow them to avoid stammering, but society makes them stammer, and so keeps them in their affliction. Parents often force the afflicted child to talk, on the theory that by talking it will talk; the teacher has him recite orally in the embarrassing presence of other pupils; the employer requires dictating, telephoning, and other difficult talking; and so the tendency becomes confirmed into a habit. When will society become as merciful to the stammerer as it is to the blind, the dumb, the deaf, and to other unfortunates?

What constitutes kindness to the stammerer? Relief from speech conventions. Tell the child who begins to stammer that it has no speech requirements; that it is expected to talk only when it is confident of its ability to do so; that it may make signs, or write, or wait, or remain silent; but it is to *decline to stammer*. Similar treatment should be accorded at school, and no speech requirements made. Until they learn to write, little stammerers may recite or read in concert, in which case the inclination to stammer is absent. And then the writing affords another alter-

native for speech. The stammerer is only one in a hundred, so no teacher worthy of the name can object to the little extra work involved in the reading of his written recitation. The pronunciation of foreign languages would have to be eliminated, but the ability to speak any language is not to be sacrificed for the sake of obtaining a little polish in pronunciation.

While the best results are attainable in preventive work, the attention of the public is so centered in the correction of the advanced stammerer that some attention to that branch of the subject is expected. The principle of treatment is the same as that for the child, the difference being that the fluent periods should be much more frequent. Liebman's procedure is safe and sound, but it is capable of much extension.

The patient has not only to combat his fixed habit of interfering with his speech, but he has to contend with an unthinking society which expects him to conform to speech conventions entirely inapplicable to him. He is expected to introduce his friends, to ask for transfers, to purchase the theater tickets, to order the refreshments,—to do innumerable things which are embarrassing to him and, therefore, cause him to stammer. Society should adopt the attitude which leads to the stammerer's recovery instead of his confirmation in the affliction. The patient should be instructed to carry a pad and pencil, and to use them rather than stammer. Few stammerers can purchase a railway ticket without danger of stammering. The circumstances of hurry, witnesses, possibly a curt agent, a definite place to be named—all these make the ticket window a veritable bogie to the stammerer.

The physician should see to it that his stammering patient writes out on a piece of paper what he wants, and has that paper ready to present in case his speech-doubt arises. The very fact that the paper is within reach will often serve to allay his doubt and enable him to speak.

Special Provision for Stammerers

If the patient is in school or college, arrangement should be made for exemption from all required speech and for the maximum opportunity for conversation, preferably with one congenial companion. The physician should impress upon the home circle the reason for the two principles of treatment and the details of application. The stammerer should be provided at the table with individual staples such as salt, pepper, bread, and butter. He should not be asked alternative questions. "Will you have this or that?" The very form of such a question engenders speech-doubt which is almost sure to make him stammer. He

cannot answer it by sign of head and he can seldom answer it by any other sign. Instead of such a question, if it be a choice of tea and coffee, say, "We have both tea and coffee. Will you have tea?" If the answer is negative ask, "Will you have coffee?"

Encourage the Stammerer

The physician has not only these two duties of prohibiting the impeded speech, and promoting the fluent speech, but there is also the necessity of encouraging his patient. A marked improvement may be evident at once; but be not deceived, for any immediate change is only transitory, except that changes for the worse are often of sudden onset.

The panic, or speech-doubt, is reducible only gradually; the patient will invariably expect quick results, so he will almost surely be disappointed, especially if he goes back after an initial uplift. At this stage the physician will find a real labor in keeping his patient in the right path. The affliction renders its victim temperamental, and in such a state he may abandon the treatment unless he has wise council. There is in stammering the opportunity to work miracles. Here is an affliction as old as humanity, world-wide, a serious handicap in an almost essential faculty, and the whole disorder may be wiped out in a couple of decades by a mere change of attitude on the part of society, and the psychic control of what is a psychic malady. The very institutions which are spreading and intensifying it now, primarily the public schools, may be the principal means of abolishing it. Surely modern medicine will not delay to strike the fetters from this great class of slaves who have hitherto cried for justice in vain.

URGES RECONSTRUCTION OF MEDICAL PROFESSION FROM WITHIN

"If the medical profession does not organize as a working body, the majority of doctors will ultimately be drafted into the service of the political state or will be employed by cooperative societies," writes Dr. J. P. Warbasse, of Brooklyn, N. Y., in an article on "Medical Reconstruction," which appears simultaneously in the *Long Island Medical Journal*, the *Medical Review of Reviews*, and the *Western Medical Times*.

He expresses the view that the whole population of every community must be served by the physicians through some plan of group practice, if not one, then another. He says in part:

"A change in the organization of society is now in progress, and medicine like all other callings is destined to participate in the radical reorganization."

"The tendency is toward stateism. Stateism is not the ideal line for the best development of the medical profession."

"As an alternative the medical profession should organ-

ize itself compactly on syndicalistic lines, as a workers' movement.

"As so organized, it may compromise with the political state and develop the guild principle in conjunction with state ownership of medical institutions.

"Or as a syndicalistic organization of workers, it may aim to coordinate its functions with those of cooperative societies of consumers.

"The latter is the ideal plan. But in America it can not yet be consummated because of the still inadequate development of cooperative societies. The growth of cooperation, however, is rapid, and it is conceivable that by the time the medical profession can effect its own reorganization, the people will have developed their cooperative movement to a point at which the two can become coordinated. This is the goal toward which all should look.

"In the meantime the reconstruction of the medical profession should be set on foot as a problem purely of medical organization."

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LAW FOR THE DOCTOR

BY LESLIE CHILDS, ATTORNEY AT LAW, INDIANAPOLIS,
INDIANA

*Liability of surgeon for applying extraordinary remedy
in desperate case.*

If, after an operation, the patient's hopes have not been fulfilled, the most likely person in the world to blame is the surgeon; and if in the conduct of the operation or the after treatment there has been even a slight deviation from the usual practice in like cases, this, coupled with a failure to improve, is frequently about all that is required to convince a certain class of patients that they have been grossly abused.

Given a case of this kind a skillful attorney, assisted perhaps by the imagination of his client, will draw a seemingly good complaint upon the absolute minimum of fact and, if this is supported by the slightest evidence, will in most cases get to the jury. Fortunately there is a limit to this sort of thing and, once in a while, the mistaken belief upon which the action was predicated becomes so apparent in the trial that the court is forced to give a peremptory instruction for the defendant doctor. Such a case was that of *Miller vs. Toles*, 183 Mich. 252, the facts being substantially as follows:

The plaintiff, Miller, suffered an injury to his ankle, caused by a fall from a scaffold August 24, 1909. Doctor Tooker was called, pronounced the injury a bad sprain, and prescribed a liniment which was used some three or four weeks. He treated the plaintiff during the fall of 1909 and winter of 1909-10, but without success.

In the spring of 1910 plaintiff consulted Doctor Hagedorn, who took an x-ray of the injured member and prescribed for same, using iodin, which was applied externally. The ankle failed to respond to this treatment so in June, 1910, the plaintiff called Doctor Nottingham who, also, took an x-ray and placed the injured ankle in a plaster cast which was worn about two weeks. After this a second plaster cast was placed on, the same being worn about three weeks. The ankle did not improve.

Plaintiff next consulted Doctor Gordon, who treated the injured member with a hot solution and bandaged it. This brought no relief and on November 19, 1910, Doctor Gordon advised the plaintiff that his case was one which demanded surgical treatment. Doctor Toles, the defendant, was thereupon called into consultation.

After an examination Doctor Toles determined to attempt to save the plaintiff's foot and ankle by the use of the "Murphy Treatment." At the time of this consultation Doctor Gordon expressed the opinion that amputation was necessary. Dr. Toles did not promise anything from the treatment but seemingly gave it as a last resort.

The first injection was given November 20, the second December 3, and the third December 30, 1910. After each injection plaintiff suffered severe pain which lasted from one to three days, requiring the administration of opiates for its relief.

No noticeable improvement followed and on February 14, 1911, it was decided to undertake an exploratory operation. This was done, and the bones on the inside of the ankle were laid bare for examination. The result of this operation, nor the treatment which followed, appears in the report; but the ankle did not improve and on August 7, 1912, about eighteen months after the exploratory operation, the plaintiff's condition became so serious that it was decided to amputate the foot. This was accordingly done.

Later the plaintiff brought an action against Doctor Toles the defendant, charging him with malpractice in the following particulars:

"(1) In administering the injections which he describes as an experimental remedy; (2) in failing to relieve plaintiff's pain after the administration of the several injections; (3) in carelessly and negligently conducting the exploratory operation in such a manner as to cut the muscles and tendons on the inside of the injured ankle, and in failing to support them properly after the operation. * * *"

At the conclusion of the plaintiff's evidence the trial court directed a verdict for the defendant for the reason that there was no evidence tending to show that the treatment given by the defendant in any way caused the loss of plaintiff's foot. From this directed verdict the plaintiff appealed. The Supreme Court, in passing on the record, had this to say:

"* * * It is obvious from an examination of this record that at the time Doctor Toles was called plaintiff's ankle was in an extremely serious condition. It was in such a condition as, in the opinion of his attending physician, demanded amputation. Under these circumstances defendant tried a remedy which appears to have been known and approved by the profession, though perhaps not generally, and which in some instances of diseased joints had achieved remarkable results.

"It is apparent from the testimony of Doctor Gordon, the plaintiff's own witness, that a favorable result from such treatment was scarcely to be expected; at most, it could only be hoped for. Inasmuch as the only alternative at that time was immediate amputation, it would, in our opinion, be a strange application of the law which would hold defendant responsible for its failure. In treating a broken or diseased limb, the implied contract between the surgeon and patient is not to restore it to its natural condition, but to use that degree of diligence and skill which is ordinarily possessed by the average of the members of the profession in similar localities, giving due consideration to the state of the art at the time. * * * stand affirmed."

"We are of the opinion that the circuit judge properly directed a verdict for defendant, and the judgment will stand affirmed."

VOCATIONAL BOARD IN NEW FUNCTION

Representatives from the Federal Board for Vocational Education have been sent to each of the district offices to explain new regulations in the administration of the vocational rehabilitation law. These regulations were revised to meet the requirements of recent changes in the law as amended by Congress. By this recent legislation the benefits of the rehabilitation act are extended to all

*The fifth of a series of articles on "Law for the Doctor," written for MODERN MEDICINE by Leslie Childs.

persons disabled in the service—this, of course, includes those suffering with tuberculosis. The Federal Board is given the entire responsibility of determining the right to and need for vocational training of those persons whose disability prohibits a return to former occupations, and who are unable without training to carry on in a gainful one. The support of the disabled man, with that of his dependents, is entirely the responsibility of the Federal Board during his period of training. The scale of payments made to men in training range from \$80 a month, for the man with no dependents, to \$150 for the married man with six or more children. A schedule of graduated payments is also made for the widower with children and for the man with dependent father and mother.

AMERICAN HOSPITAL CONFERENCE MEETS WITH HOSPITAL ASSOCIATION

On April 21, 1919, a conference to consider the problem now generally designated as "Hospital Standardization" was called in Chicago by Dr. Arthur Dean Bevan, president of the American Medical Association, in accordance with the following resolution adopted at the fifteenth annual conference of the Council on Medical Education, March 3, 1919. The resolution followed the reading and discussion of a paper on this subject presented by Dr. A. R. Warner, president of the American Hospital Association. Dr. Warner presented the resolution; which reads:

"Resolved, That it is the consensus of opinion of the members of this conference that the apparent agreement on the subject of hospital standardization, as expressed in this meeting, should be utilized to expedite progress on this problem. To that end it is the consensus of opinion of this conference that the American Medical Association be asked to take the leadership in formulating a committee, representing all interested factors, which shall give this subject of hospital standardization such consideration and study as is possible, and that the American Medical Association, together with this committee, arrange to call a meeting of all those interested in and affected by hospital standardization at some convenient point and time within the next year."

The conference on April 21st was composed of delegates from national organizations more directly interested in hospital work. After a full day's discussion of the problem at hand and means and possible methods of meeting it, a resolution was adopted that there be formed an organization to be known as the American Hospital Conference to be composed of two representatives each from the following twelve organizations:

- American College of Surgeons.
- American Medical Association.
- American Nurses' Association.
- American Hospital Association.
- Association of American Medical Colleges.
- Federation of State Medical Boards of the United States.
- American Association of Hospital Social Workers.
- Catholic Hospital Association of the United States and Canada.
- American Association of Industrial Physicians and Surgeons.
- Medical Departments of the United States Army, Navy and Public Health Service.

By a second resolution it was decided that there should be an Executive Council of the American Hospital Conference to complete the organization and arrange program for the first meeting. The Council selected by the Conference were the following: Dr. A. R. Warner, president, American Hospital Association, Cleveland, Ohio, chairman; Dr. W. L. Bierring, secretary, Federation of State Medical Boards of the United States, Des Moines, Iowa; Dr. John M. Dodson, acting chairman, Council on Medical Education of the Council on Medical Education of the American Medical Association, Chicago.

It was also decided that the first meeting of the Conference should be held in conjunction with the annual

meeting of the American Hospital Association at Cincinnati in September, 1919.

At the adjournment of the Conference in Chicago, April 21, the leadership of the American Medical Association in the affairs of the American Hospital Conference as provided in the resolution ceased. The Conference became entirely democratic with each constituent association having equal voice in its affairs.

The Executive Council is completing the organization, securing the cooperation of the twelve constituent organizations in the naming of the authorized voting delegates, and working out a program for the Cincinnati meeting in September. At this meeting a permanent organization will be accomplished. At its accomplishment the present Executive Council will automatically cease to exist. The future plans and policies of the American Hospital Conference will be decided by the constituent delegates.

The paper of Dr. Warner which led to the formation of this Conference was published in the *Journal of the American Medical Association*, March 29, 1919, and the full report of the Conference in Chicago, April 21, was compiled and published by the American Medical Association. Copies may be secured either through the office of the American Medical Association in Chicago or through the offices of the American Hospital Association.

The tentative program of the American Hospital Conference at Cincinnati follows.

TENTATIVE PROGRAM OF AMERICAN HOSPITAL CONFERENCE, SEPTEMBER, 1919

The final program including halls assigned for all meetings will be ready for distribution when the conference opens.

TUESDAY, SEPTEMBER 9, 2 P. M. EXECUTIVE SESSION

(Liberty Room, 10th Floor, Gibson Hotel.)
Report of Executive Council, Dr. A. R. Warner, chairman.
General Discussion.

WEDNESDAY, SEPTEMBER 10, 10 A. M. JOINT GENERAL SESSION OF THE AMERICAN HOSPITAL ASSOCIATION AND AMERICAN HOSPITAL CONFERENCE

(Ball Room, Hotel Gibson.)
General Subject, "Hospital Standardization."
"The Organization and Functions of a Hospital," speaker to be announced.
"Medical Education Through the Visiting Staff and Interns," Dr. John M. Dodson, Dean, Rush Medical College, Chicago.
"Better Professional Work Through a Better Staff and Better Records," Mr. John G. Bowman, Executive Secretary, American College of Surgeons.

WEDNESDAY, SEPTEMBER 10, 2 P. M. JOINT GENERAL SESSION OF THE AMERICAN HOSPITAL ASSOCIATION AND AMERICAN HOSPITAL CONFERENCE

(Ball Room, Gibson Hotel.)
The Hospital's Service to Humanity, The Rev. Charles R. Moulinier S.J., president, Catholic Hospital Association of the United States and Canada.
Discussion, opened by Miss Edna G. Henry, president, American Association of Hospital Social Workers.
"The Education of a Nurse," speaker to be announced.
"The Trustees and Layman Viewpoint," speaker to be announced.

THURSDAY, SEPTEMBER 11, 10 A. M. EXECUTIVE SESSION

(Liberty Room, 10th floor, Hotel Gibson.)
General discussion of organization and work.

THURSDAY, SEPTEMBER 11, 2 P. M. EXECUTIVE SESSION

(Liberty Room, 10th floor, Hotel Gibson.)
General discussion of policy and procedure.
Adjournment.

GRIP CAUSES MORE DEATHS THAN WAR IN ITALY IN 1918

According to statistics published in the *Secola*, of Rome, there were in Italy 800,000 deaths during 1918 caused by grip, or about 60 per cent more than the total deaths caused by the war. The same paper estimates the deaths by grip throughout the world were double the deaths caused by the war.

THE MONTH IN MEDICINE

Survey of Current Medical Literature with Editorial Comment

WALTER W. HAMBURGER, M. D., Editor

ONE ASPECT OF SYPHILIS AS A COMMUNITY PROBLEM

UNDER the above title Newcomer, Richardson, Ashbrook, and Lewis¹ present their experiences with the establishment of a syphilis clinic at the University of Pennsylvania. In his introduction Lewis comments on the studies of Davis, showing that 10 per cent of all persons presenting themselves to a general hospital for treatment are there either because of syphilis, or because their illness is complicated with a co-existent syphilis. Lewis further makes the plea that to eradicate syphilis the combined efforts of all specialists concerned—educators, physicians, police, and sociologists—must be utilized.

Newcomer discusses the organization and management of the clinic. A social service worker follows up the patients, and sees that the instructions of the doctor are carried out. Saturday afternoon is devoted to the administration of salvarsan for which the patient pays a moderate fee of from three to four dollars. A further discussion of technic, results, effect on the Wassermann reaction, etc., may be consulted by those interested in such details. The discussion of the Wassermann interpretation is particularly worth while.

Richardson presents the studies of twelve syphilitic women who were pregnant at the time or soon became pregnant, and he concludes that "the condition of the mother improved with treatment, though several still showed signs of syphilis—with positive Wassermann—even after the birth of apparently normal children."

From the standpoint of the economic results to the patient from systematic treatment in a special clinic, the results obtained in twelve patients who were followed up are interesting. "A table has been prepared which picks out specifically twelve patients whose earning capacities are given, whose immediate loss of time due to the

incapacitation in consequence of the disease, and the cost of whose treatment, and the time, and amount of money saved through the agency of the salvarsan clinic are also given. It will be seen that for these twelve patients, treatment cost them \$81, saved them \$1,080 in earning capacity, and a year of time. If the clinic were a charity, which at present it is not, a charity so expended as to bring 1,000 per cent on investment would be a very profitable one indeed."

Lewis summarizes as follows: "Our experience as presented in the preceding sections shows that it is practicable for any well organized general hospital to establish a clinic for the treatment of syphilis, without great expense to the institution, and to the certain advantage of the community it serves. . . . It being assumed that such clinical facilities as those described have been made available in adequate amount, the attack on syphilis as a community problem should make, as a measure of the first importance, systematic effort to secure treatment at the earliest possible moment for the infected."

Comment.—The establishment of specialized out-patient clinics seems to be a sign of the times. The following are already represented: Tuberculosis, infant welfare, mental hygiene, cardiac and industrial clinics, and this most recent addition, the syphilis clinic. Their effectiveness in the concentration of effort and thought to more exact and systematic diagnosis and treatment in the special conditions represented has been demonstrated. One cannot help voicing a note of warning that too widespread and detailed specialization may prove harmful. As in this clinic, further specialized clinics should wait until the needs of the community demands their establishment.

EDITOR.

I hold every man a debtor to his profession; from which they as men of course do seek to receive countenance and profit, as ought they of duty to endeavour themselves by way of amends to be a help and ornament thereunto.—Bacon.

¹ Newcomer, H. S.; Richardson, Russell; Ashbrook, Charlotte; and Lewis, Paul A.: One Aspect of Syphilis as a Current Problem. *Am. Jour. Med. Sc.*, 1919, clviii, 141.

SERIOUS CHARACTER OF INFLUENZA EPIDEMICS

IN MARCH, 1890, the Edinburgh Medico-Chirurgical Society devoted an entire meeting to the discussion of the influenza epidemic then prevailing. The serious character of the pandemic of 1918-19 was such as to make it the subject of the May, 1919, meeting and a series of able studies, fully discussed, brought out the salient features of the situation. We quote from the *Edinburgh Medical Journal* a summary of the discussions:

"Dunlop¹ estimates that in Scotland the disease has caused 20,000 deaths, and these mostly in the age periods 15 to 45. Probably most of those who remember the epidemics of the early nineties will agree with Russell² that the malady then was essentially the same as that which has recently played such havoc. Unfortunately, it cannot be said that, in the quarter century which has elapsed, our knowledge of influenza has undergone any very material advance. We are still quite in the dark as to the cause of its sudden pandemic spread, and as to why it has once again taken on so serious a character.

"It is tempting to blame for these the conditions which have obtained throughout Europe since 1914, and to suppose, with James³, that the nations have trenched unduly on their reserves of strength in the effort to victory, but in the face of the virulence of the epidemic in Africa and India, where such a factor could scarcely be operative, it seems almost impossible to escape the conclusion that exalted virulence of the infective agent has played a larger part. So far, bacteriology has not conclusively shown the nature of the infection. It is clear that in cases of influenza or influenzal pneumonia three organisms, or groups of organisms, are more or less constantly present--the bacillus of Pfeiffer, the pneumococcus, and the streptococcus. The outstanding fact which arises from Logan's work on the bacteriology of the Edinburgh cases is the multiplicity of types and sub-groups of the organisms present. Even Pfeiffer's bacillus is not one, but comprises a group of organisms. Bacteriological data such as Doctor Logan gives militate strongly against the likelihood of an effective anti-serum being produced in the immediate future.

"The relation of the Pfeiffer to the Bordet Gengou bacillus of whooping-cough was referred to by Dr. Ford Robertson⁴ and although it raises a side issue the point is a suggestive one. These two organisms resemble each other very closely from a bacteriological standpoint; it is sometimes most difficult to decide, especially in an adult who has had whooping-cough as a child, whether an irritating, paroxysmal, spasmodic cough is "post-influenzal" or true whooping-cough. Certainly the resemblance between whooping-cough with an ill developed whoop and some cases of influenzal catarrh is very great.

1. Editorial, *Edinburgh Med. Jour.*, 1919, n. s. xxiii, No. 1, pp. 1-3.
2. Dunlop, J. C.: Notes on the Influenza Mortality in Scotland During the Period July, 1918, to March, 1919. *Edinburgh Med. Jour.*, 1919, n. s. xxii, No. 6, 103.

3. Russell: Introduction to the Discussion on the Influenza Epidemic. *Edinburgh Med. Jour.*, 1919, n. s., xxii, No. 6, 109.

4. James, Alexander: Discussion, *Edinburgh Med. Jour.*, 1919, n. s. xxiii, No. 1, 16.

5. Logan, W. R.: The Bacteriology of the Influenza Epidemics of 1918-1919 (based on an interim report to the Medical Research Committee, from the Royal College of Physicians, Edinburgh). *Edinburgh Med. Jour.*, 1919, n. s. xxiii, No. 1, 54.

6. Robertson, Ford: Discussion, *Edinburgh Med. Jour.*, 1919, n. s. xxiii, No. 1, 53.

7. Porter, Frederick: Certain Points in Treatment. *Edinburgh Med. Jour.*, 1919, n. s. xxiii, No. 1, 59.

"The outstanding question at present with regard to the etiology of influenza—the part played by filter-passing organisms—was barely touched on in the discussion. . . . Another point raised, which has wider implications than the etiology of influenza, is the possible effect of the deficiency in vitamines of such butter substitutes as the vegetable fats, which were so largely used as butter substitutes during the war. The study of these vitamines has hardly begun, yet already it foreshadows a great advance in the scientific application of dietetics.

"So far as the treatment of influenza is concerned, no definite proof of the efficacy of vaccines was adduced. Doctor Porter's experience with phenol certainly appears to warrant a more extended trial of that remedy. For the rest, it does not appear that any advance has been made in practical therapeutics; particularly if pneumonia develops, most will agree with James that the problem is heart-breaking. Apart from the direct sequelae, the more important of the remoter consequences of influenza are seen in the lighting up of tuberculosis, and in the production of maladies of the nervous system. Acute tuberculosis is not very infrequently seen after influenza, yet it is interesting that the epidemic did not seem to bear hardly on the inmates of sanatoria, nor, indeed, is there any great tendency for the disease to spread in well ventilated wards. It would seem from this, that the infection, like that of measles, does not spread very far from the person affected, and also that fresh air is one of the best prophylactics.

"The nervous complications of influenza have long been recognized as common and serious. The late Sir Thomas Clouston used to speak of it as a disease which lowered the nerve tone of a community, as was shown by an increase in mental disease after the epidemics of 1899-94, and his successor, Doctor Robertson, has the same tale to tell. What, if any, relation subsists between influenza and lethargic encephalitis is not known; the coincidence of the two diseases in epidemic form is remarkable, and demands elucidation. The possibility that both may be due to filter-passers, the occurrence of meningeal and lethargic symptoms in many cases of influenza, and the undoubtedly prevalence during the past year of sudden deaths of young adults with acute cerebral symptoms are curious facts. Toxic psychoses, too, have unquestionably been far from rare during the recent epidemics, taking the form of mania, confusion, or stupor. It is too soon, yet, to attempt to collate recent work on influenza, but the disease has been the subject of such intense study from all sides that we feel justified in believing that many aspects of the disease which are still obscure will soon be unveiled to us."

JOURNAL OF INDUSTRIAL HYGIENE

The August issue of the *Journal of Industrial Hygiene* offers the following original articles:

FACTORY INSPECTION AND FACTORY INSPECTORS. By George M. Price, M.D., director of the Joint Board of Sanitary Control in the Cloth, Suit and Skirt Industries, New York City.

HERINA IN INDUSTRY. By Charles A. Laufer, M.D., medical director, Relief Department, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

THE OCCURRENCE, COURSE AND PREVENTION OF CHRONIC MANGANESE POISONING. By David L. Edsall, M.D., Jackson professor of clinical medicine, Harvard Medical School; consultant in industrial hygiene, United States Public Health Service; chief of industrial clinic, Massachusetts General Hospital; F. P. Willard, M.D.; and Cecil K. Krinker, M.D., associate professor of applied physiology, Harvard Medical School.

PUBLIC HEALTH NURSING AND INDUSTRIAL HYGIENE. By Mary Beard, R.N., director, Instructive District Nursing Association, Boston; president, National Organization for Public Health Nursing.

INDUSTRIAL POISONING BY COMPOUNDS OF THE AROMATIC SERIES. By Alice Hamilton, M.D., special investigator, United States Bureau of Labor Statistics; assistant professor of industrial medicine, Harvard Medical School.

REPEATED BLOOD PRESSURE READINGS AS A CONSERVATION MEASURE

BY L. M. BOWES, M.D., CHICAGO

EXPERIENCE has taught us that if all employees who have passed the age of forty-five were examined at regular intervals the number of accidents would be greatly reduced. Neither would so many serious wrecks occur with great loss of life and the injury of many people because some engineer, who should have been pensioned or discharged some time before, had died of cardiac disease or had become dizzy or unconscious while at the throttle of an engine and ran the train into an open switch, or into some passenger train. Neither would elderly men so frequently fall unconscious at some unexpected time and injure themselves.

Such a case came to the attention of the writer recently in a man who in leaving his place of business passed through a crowd of men and was picked up in an unconscious condition several blocks away by a policeman who had seen him fall. He sustained a severe cut on his head and was sent to a hospital where he was given first aid. This man knew nothing of his movements from the time he passed through the group of fellow employees and thought that, as he had expressed his views on the temperance question rather freely, some wet sympathizer had taken offence and slugged him. Examination revealed that he had fibromyocarditis and advanced arteriosclerosis; if he overexerted or remained in a stooping position very long he would become dizzy. By changing the nature of his work he was able to retain a position with the firm without danger to himself or others.

It is true that since the liability acts went into effect placing directly upon the employer the responsibility for injuries and deaths which occur because of some negligence or inefficiency the number has been greatly lessened. Such examinations would greatly decrease the number of injuries and deaths, and the number of preventable diseases due to insanitary conditions also would be diminished, thus promoting the conservation of human life to a great extent.

To assist in making these examinations there is no measure which is more exact or more valuable than blood pressure observations. This is recognized by nearly all of the life insurance companies and they require the systolic and diastolic readings in the reports of all risks. It is granted that in many instances the blood pressure obser-

vations alone do not help us any but they should be made in all routine examinations because when studied with other objective symptoms their value is greatly increased. On the other hand, increased pressure frequently indicates some serious disease even when there are no subjective or objective symptoms present, the person apparently enjoying robust health.

Magnuson¹ claimed that he "insisted on blood pressure examinations to nip in the bud the chance of getting any man into service who was liable under quick strain or violent exercise to get a stroke of apoplexy, to fall dead at his work, to be apparently killed in the service, when, as a matter of fact, it was a pathological process in his own body which killed him."

In making blood pressure observations both the systolic and diastolic pressures must always be taken because quite frequently the diastolic or systolic pressures are more important than the systolic alone.

Arteriosclerosis

In arteriosclerosis more or less difficulty is experienced in analyzing the blood pressure findings and arriving at the proper conclusion because the blood pressure changes are not regular and uniform, and it is frequently difficult to eliminate the elements in blood pressure which are due to associated conditions. The influence of arteriosclerosis upon the blood pressure also depends upon the degree of involvement and the distribution of the lesion; some have very little if any effect, while others, notably lesions of the splanchnics, the cerebral, and coronary arteries, and the aorta may have marked influence. The diastolic pressure is usually increased in these lesions but not in proportion to the systolic pressure which causes an increase in the pulse pressure.

Inequality of the pressure of the two sides of the body is frequent in arteriosclerosis; therefore, simultaneous observations on the two arms should be made, especially in those showing indications of premature senility. As the process of arteriosclerosis continues a sufficient degree of hypertrophy of the heart takes place to maintain perfect compensation and both the systolic and diastolic pressures increase; but if the cardiac muscle should fail to compensate through myofi-

¹ Magnuson, P. B.: *Railway Surg. Jour.*, November, 1913.

brosis the pressures will fall, and thus there may be very high or normal blood pressures in arteriosclerosis.

Intracranial Pressure

In cerebral hemorrhage, thrombosis, depressed skull fractures, rapidly growing cerebral tumors, or any other cause of increased intracranial pressure there is hypertension. High systolic with high diastolic pressure indicates increased intracranial pressure or chronic nephritis; and a sustained hypertension both of the systolic and diastolic pressures indicates cerebral hemorrhage, while hypotension indicates cerebral embolism.

Hypertension

No individual who has a persistent hypertension together with a morning headache, vertigo, numbness, or tingling of the hands or feet should be placed in any position where the lives of others are endangered, because these symptoms indicate the presence of nephritis or arteriosclerosis, or cerebral hemorrhage may occur upon sudden strain or severe exertion.

In all cases of hypertension a very careful search should be made for the cause so that it may be removed. In many cases no cause can be found and if the heart, blood vessels, and kidneys are normal, undue importance should not be attached to these cases. Neither is it wise to give high blood pressure undue weight to many individuals because they will become alarmed and will watch their blood pressure constantly, even exaggerating all aches and pains and connecting them with the high blood pressure. This tendency to introspection is carefully to be avoided. These cases must be watched, however, more closely than normal cases.

Chronic Nephritis

High systolic and diastolic pressures are found regularly in chronic interstitial nephritis. The pulse pressure is proportionately increased. Associated conditions, such as arteriosclerosis, chronic toxemia, and myocarditis, may modify the blood pressure findings. If the element of nephritis predominates, the systolic pressure greatly increases and it is in these lesions that systolic pressures of 250, 300, and even higher may be observed. The diastolic pressure is always increased and, roughly speaking, in proportion to the severity of the nephritis. This disproportionate increase of the diastolic pressure is considered the most characteristic change in blood pressure in this lesion. Hypertrophy of the left ventricle must occur to maintain this pressure.

In this condition as in all instances of hypertension, when the limit of hypertrophy has been

reached, when the reserve power of the heart is exhausted and myocardial degeneration has developed, the increase in pressure ceases and later, as the process of degeneration progresses, a decline in pressure occurs. The decline in systolic pressure is greater than that of the diastolic, causing a low pulse pressure.

In uremia the systolic and diastolic pressures increase in correspondence to the severity of the symptoms, becoming very high in the more severe conditions.

The blood pressure may or may not be high in chronic parenchymatous nephritis. When present its association with the other findings is important, but its absence does not rule out this disease.

The Anginas

The anginas are accompanied with hypertension. Some of the highest blood pressures are observed with angina of the abdominal blood vessels. *Angina abdominalis* occurs much more frequently than is generally supposed and in nearly every instance which has come to our attention it has been diagnosed as acute indigestion, gallstone, or renal colic. In all of these cases the nitrites gave immediate relief. In every instance where nitroglycerin was administered under the tongue complete relief was obtained promptly.

It is believed that atheroma is more commonly found in the gastric and mesenteric arteries than it is in the coronary arteries. *Angina abdominalis* is observed more frequently than *angina pectoris* in the aged.

Cardiac Diseases

Blood pressure observations are important in cardiac diseases. A sustained high systolic with a low diastolic pressure is usually associated with aortic regurgitation. In all cases of sustained hypertension the importance lies in the ability of the cardiac muscle to carry the extra load.

The great question is: how long will the cardiac muscle sustain this high pressure? In this condition a lowering pressure indicates a failing heart. When the limit of the cardiac reserve power has been reached, the diastolic pressure falls with but not as rapidly as the systolic pressure, causing a decreased pulse pressure. Uncomplicated myocarditis may show no marked change on the blood pressure for some time, but when the reserve power of the heart is exhausted the natural result is a fall of both the systolic and diastolic pressures. There may be a greater decrease in the diastolic pressure with an increased pulse pressure.

Occasionally in aortic regurgitation the dia-

systolic pressure can not be obtained because a sound is heard until all pressure in the armlet is removed. The systolic and diastolic pressures are regularly lowered in chronic valvular disease with decompensation.

A low diastolic pressure may also be present in cases of chronic rheumatism, acute enteritis, carcinoma, tuberculosis, and the anemias.

Chronic Toxemia

In chronic toxemia of intestinal origin the systolic and diastolic pressures are usually lowered, but if associated with chronic nephritis and possible arteriosclerosis these pressures may be raised.

The degree of increase in blood pressure due to chronic toxemia of intestinal origin may be ascertained by removing the toxemia by proper dietetic treatment and subtracting the subsequent blood pressure readings from those first taken.

Chronic tobacco poisoning may be a cause of hypertension both of the systolic and diastolic pressures; the fall of the systolic is greater than that of the diastolic pressure which results in a low pulse pressure. Later, the effect of tobacco seems to lose this influence, because in aged men who have been habitual smokers for fifty years or longer observations made before and after smoking give the same results. Also in our observations the pressures remained the same whether the men smoked or had not smoked during a prolonged period. These variations in the blood pressure seem to be proportionate to the susceptibility of the individual.

Conclusions

Although blood pressure is a comparatively new subject and there are many difficulties in the interpretation of the clinical significance of variations in the systolic, diastolic, and pulse pressures we believe that:

1. The importance of making observations of the systolic and diastolic pressures of all employees more than forty-five years of age, at stated intervals of six months, can not be overestimated.

2. If this is conscientiously done there will result great conservation of human life.

3. By such observations with corrective measures the earning capacity of many individuals will be greatly increased.

4. By this means the number of injured and the number of those in ill health as a result of poor working conditions will be decreased.

5. Better relations will be established between the employers and employees, thus promoting the interests of both.

NEW HAVEN HOSPITAL BEGINS COURSE IN DIETARY STUDIES

An elaborate course of training in dietary studies for student dietitians has been arranged for the coming year at the New Haven Hospital, New Haven, Conn. The work covers the theoretical phases of the subject, the administrative duties of the dietitian in hospitals or other institutions, and the practical application of principles in laboratory, kitchen, serving room, or office.

The close relationship of dietary problems to medicine and the dietetics of particular classes of diseases are emphasized. The following outline of the training course is published by courtesy of the New Haven Hospital:

OUTLINE FOR TRAINING OF STUDENT DIETITIANS THEORETICAL WORK.

Pathological physiology—Dept. of Experimental Medicine, Yale University School of Medicine.
Pathology of nutrition—Yale University School of Medicine.
Nutrition of Growth—Lafayette B. Mendel, Sheffield Scientific School, Yale University.

Dietetics of Infancy and Childhood—Dept. of Pediatrics, Yale University School of Medicine.

Dietetics of Pregnancy—Dept. of Obstetrics, Yale University School of Medicine.

Dietetics of Pre- and Post-operative Cases—Dept. of Surgery, Yale University School of Medicine.

Dietetics of Special Diseases—Dept. of Medicine, Yale University School of Medicine.

Acute infectious diseases.

Gastro-enteric.

Cardio-vascular-renal.

Metabolic.

Cutaneous.

Physiological Seminar—Lafayette B. Mendel, Sheffield Scientific School, Yale University.

Dietary Administration—E. M. Geraghty.

1. General principles of hospital dietetics.

2. General principles to be observed in buying dairy products.

3. General principles to be observed in buying meats.

4. General principles to be observed in buying staples.

5. General principles to be observed in buying canned goods.

6. Contracts.

7. Equipment.

Manufacture.

Value.

Placement.

Care.

8. Factors influencing efficiency of employees.

PRACTICAL WORK

DIET LABORATORY (2 months)

Dietetics of special diseases.

1. Planning, preparing and serving of food for patients requiring dietary treatment.

2. Computing and recording value of food intake of above mentioned patients.

3. Preparing feedings for infants.

KITCHEN (one month)

Supervision of requisitioning of food supplies.

Supervision of care and storage of food supplies.

Supervision of preparation and distribution of food.

Supervision of care and utilization of left-overs.

Supervision of cleaning of kitchen.

Supervision of employees in kitchen.

SERVING-ROOM (one month)

Inventory of dishes and silver.

Supervision of care of same.

Supervision of service of food.

Supervision of cleaning of rooms connected with serving-room.

Supervision of care of stationary equipment.

Organization of work of waitresses and pantry workers.

OFFICE (one month)

Dietary studies.

Menu making.

Cost accounting.

Preparation of outline for teaching nurses dietetics.

Teaching nurses dietetics.

Outlining equipment for dietary department of 250-bed hospital.

Routine office work.

While here, do some problem in hospital dietetics; nature of problem to be determined by need of individual.

Visits to other hospitals, followed by report on dietary departments.

Visit to food inspection laboratory at state experiment station.

Study of milk industry in New Haven.

Study of market conditions in New Haven.

Study of ice cream industry in New Haven.

Army Casualties 297,147, July 2nd

Total casualties in the American Expeditionary Forces, including all corrections and alterations published to July 2, are given in an official report as 297,147. This was a net increase of 1,565 over the preceding report on June 25. Battle deaths increased 321 to 50,150 and total deaths 400 to 78,917. The wounded aggregated 216,309.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

CLINICAL MICROSCOPY AND CHEMISTRY. By F. A. McJunkin, M.A., M.D., professor of pathology in the Marquette University School of Medicine. Formerly assistant in the pathological laboratory in the Boston City Hospital.*

It is difficult to believe that there is need or room for yet another manual on these subjects. The one under review is adequate for the guidance of the laboratory workers of a hospital which cannot afford to employ specialists in the various departments. It is exceptional in that it treats of the management side of a hospital laboratory in some detail. The pathological section is much fuller than the biochemical. In the latter we note the usual confusion in dealing with hydrogen ion solution. On page 101 the statement is made that "A normal acid solution contains one gram of hydrogen ions per liter." This would mean that a liter of normal acetic acid would have the same hydrogen ion concentration as a liter of normal hydrochloric acid, which is absurd. There is no mention of the valuable and extensively used method of fractional gastric analysis. About half of the illustrations are neither necessary nor instructive. The others are excellent.

THE ADVENTURE OF LIFE. By Robert W. McKenna, M.A., M.D., author of *The Adventure of Death*.†

To the average man the things he learns remain an unrelated mass until they become an integral part of him by means of some poignant personal experience. Others, through concentrated thought and a desire for mastery, are able to comprehend the unity and inseparability of the facts of life. To a few men it is given to understand all that comes within their ken; they are able to sense all known relations, and to surmise all potentialities. These last are the interpreters for the masses, the men with vision who lead us on.

Such a thesis as "The Adventure of Life" could be handled only by a man with vision, for the subject is life itself that "can never be explained in terms of sheer materialism, nor reduced to mere chemical equations, nor expressed entirely in the language of the physical or physiological laboratory." The book is not scientific, it is not philosophic; yet it is written by a scientist and a philosopher; by a seer, it might be claimed; certainly by a versatile and ripe thinker who impresses upon the most casual reader the "wonder and harmony of life and the complete interdependence between all forms of life."

In the chapters on the origin of life a preconceiving Mind is a logical necessity to explain the ages of preparation of the physical world for the achievement of forms of life more adaptable and more capable of progress. Nor is this conception of the directing Mind incompatible

with science. The Mind responsible for the chemical affinities and molecular combinations which resulted in the appearance of the first living protoplasmic cell was also responsible for endowing the protoplasm with the power of adapting itself to its environment until at last man stood erect upon the earth.

As man dominated the physical world, so his intelligence made further conquests. His rapid progress is attributable to the fact that the mind culture of one era passes on to the next. Anatomical and morphological changes may require a million years for their development; social and cultural changes may be impressed upon the individual and established in a race in a life time. Herein lies the hope of the race. However soul-destroying or body-warping the environment, a change in condition, plenty of sunshine and pure air; above all, education and sufficient incentive, and the race is rejuvenated,—the purity of her stock protected; all the more blame to society for the vicarious sufferers from intolerable social conditions that should be remedied.

Man's freedom is attained as right conditions are achieved. The motives, man's soul, are the outgrowth of the energizing effect of ideals aimed at; the pangs he suffers from his neglect to obey Nature's laws; the lessons of universal need to be learned from sharing the common suffering of the race; the triumph of shouldering his share of pain until perfect knowledge enables him to lay it down.

Harmonizing all, comes the love whose real basis is sex-instinct that insures the continuity of the race and incidentally entails obligations which result in that social and religious institution, the family, and necessitate work, that saving and satisfactory means of using up the "reserve-stuff" of energy. "The honesty of workmanship is the acid-test of character."

If by means of it all a man achieves faith, and is able without fear to regard death as an interesting and necessary part of the adventure of life, his destiny is fulfilled.

APPLIED BACTERIOLOGY. Studies and Reviews of some Present-Day Problems for the Laboratory Worker, the Clinician, and the Administrator. Edited by C. H. Browning. Contributors: C. H. Browning, W. Gilmour, T. J. Mackie, S. Russ, R. Gulbransen, J. F. Smith, and L. H. D. Thornton.‡

This little volume consists of a collection of twelve papers, many of them previously published. It deals with some of the newer methods of isolation by enrichment, of the typhoid, paratyphoid and colon organisms from the stools, etc., and their identification culturally and serologically. Isolation of members of the diphtheria group is discussed with special reference to the reognition of pathogenic members.

There is an interesting paper on the selective action of
(Continued on Adv. Page 22)

*W. B. Saunders Co., Philadelphia, 1919, \$3.50.
†The Macmillan Co., New York, 1919, \$1.25.
‡Oxford University Press, London, 1918.

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ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

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ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

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BOOKS OF THE MONTH

(Continued from Page 458)

antiseptics which will be of great help to those intending research along these lines, or meeting the problems of isolation by "enrichment."

The paper dealing with the possibility of selective isolation by the employment of ultra violet radiation is very suggestive, as is, also, the discussion of the chemistry of anti-body reactions.

Special reference should be made of the very excellent table of references to the bibliography accompanying many of the papers.

The book is attractively bound, is printed in readable type on good paper and is well indexed. It will be welcomed by the laboratory worker and bacteriologist; but, with the exception of the very practical chapter on tetanus, it is difficult to see of what use it would be to the clinician.

BOOKS RECEIVED

HEALTH AND THE WOMAN MOVEMENT. By Clelia Duel Mosher, A.M., M.D., medical adviser of women, Leland Stanford Junior University. Second Ed., revised. Boards, 12mo, pp. 48. The Woman's Press, New York, 1918.

THE PITUITARY. A Study of the Morphology, Pathology, and Surgical Treatment of the Pituitary, together with an Account of the Therapeutic Uses of the Extracts Made from This Organ. Cloth, 8vo, pp. 248, illustrated, \$7.50. William Wood & Co., New York, 1919.

THE SCIENCE OF EATING. How to Insure Stamina, Endurance, Vigor, Strength, and Health in Infancy, Youth, and Age. By Alfred W. McCann, author of "Thirty-Cent Bread," "Starving America," etc. Cloth, 8vo, pp. 408, \$2.00. Geo. H. Doran Co., New York, 1919.

PSYCHOSES OF THE WAR. Including Neurasthenia and Shell Shock. By H. C. Marr, Lieutenant Colonel, R.A.M.C.(T.); Doctor of Medicine; Fellow of the Royal Faculty of Physicians and Surgeons, Glasgow; Neurological Consultant to the Scottish Command; H.M. Commissioner of Control for Scotland, etc. Cloth, 8vo, pp. 292 (Appendix 38), illustrated, \$6.50. The Oxford University Press, London, 1919.

WAR NEUROSES AND SHELL SHOCK. By Fredk. W. Mott, M.D., LL.D., F.R.S., F.R.C.P.; Brevet Lieutenant Colonel R.A.M.C.(T.); senior neurologist to the Maudsley Neurological Charing Hospital; director of the pathological laboratory of the L. C. C. Asylums; corresponding member of the neurological and psychiatric societies of Paris. With preface by the Rt. Hon. Christopher Addison, M.P., Minister of Reconstruction. Cloth, 8vo, pp. 348, illustrated, \$6.50. The Oxford University Press, Warwick Square, E. C., London, 1919.

TRENCH FEVER, A Louse-Borne Disease. By Major W. Byam, R.A.M.C.; Captains Lyn Dimond, R.A.M.C., V. E. Sorapure, R.A.M.C., R. M. Wilson, R.A.M.C., and L.L. Lloyd, R.A.M.C.(T.), Entomologist. With an introduction by Lieutenant General Sir T. H. Goodwin, K.C.B., Director General Army Medical Services. A Foreword by Major General Sir David Bruce, K.C.B., F.R.S., A.M.S., and a summary of the report of the American Trench Fever Commission by Lieutenant R. H. Vercoe, R.A.M.C. Cloth, 8vo, pp. 196, illustrated, \$4.25. Oxford University Press, London, Warwick Square, E. C., 1919.

SURGICAL ASPECTS OF TYPHOID AND PARATYPOHOID FEVERS. Founded on the Hunterian Lecture for 1917—Amplified and Revised. By A. E. Webb-Johnson, D.S.O., M.B., Ch.B. (Vic.), F.R.C.S. (Eng.); Temporary Colonel, Army Medical Service; consulting surgeon, British Expeditionary Force, France; Hunterian Professor of Surgery, Royal College of Surgeons of England; assistant surgeon to the Middlesex Hospital. With Foreword by Lieut.-General T. H. Goodwin, G.B., C.M.G., D.S.O., Director General, Army Medical Service. Cloth, 8vo, pp. 190, illustrated, \$4.50. The Oxford University Press, London, 1919.

(Continued on Page 24)

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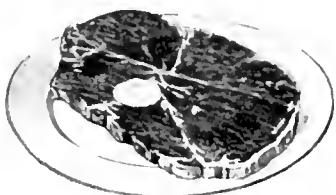
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BOOKS RECEIVED

(Continued from Page 22)

PRINCIPLES OF DIAGNOSIS AND TREATMENT IN HEART AFFECTIONS. By Sir James Mackenzie, M.D., F.R.S., F.R.C.P., LL.D., Ar. & Ed., F.R.C.P.I. (Hon.). Physician to the London Hospital (in charge of the Cardiac Department), consulting physician to the Victoria Hospital, Burnley. Cloth, 8vo, pp. 264, 3rd Ed., illustrated, \$4.50. Oxford University Press, 20 Warwick Sq., E. C., London, 1917.

THE NERVOUS HEART. Its Nature, Causation, Prognosis, and Treatment. By R. M. Wilson, Captain, R.A.M.C., late assistant to Sir James Mackenzie, under the Medical Research Committee; cardiologist to the Trench Fever Research; author of "Hearts of Men," and John Carroll, Major, M.C., U.S.A., specially attached Trench Fever Committee, assistant visiting physician, City Hospital, New York; instructor, clinical medicine, University of Bellevue Hospital Medical College. Cloth, 12mo, pp. 136, illustrated, \$2.50. The Oxford University Press, London, 1919.

THE MEDICAL AND SURGICAL ASPECTS OF AVIATION. By H. Graeme Anderson, M.B., Ch.B., F.R.C.S., Surgeon Lieutenant, Royal Navy; surgeon, Royal Air Force Central Hospital; senior assistant surgeon St. Mark's Hospital; senior assistant surgeon, Belgrave Hospital. With chapters on Applied Physiology of Aviation by Martin Flack, M.A., M.B., Lieutenant Colonel, R.A.F.; director of medical research to the Royal Air Force, and the Aero-Neuroses of War Pilots, by Oliver H. Gotch, M.B., Ch.B., M.R.C.P., London; Surgeon Lieutenant, Royal Navy; Physician, Royal Air Force, Central Hospital. Cloth, 8vo, pp. 255, illustrated, \$5.00. The Oxford University Press, London, 1919.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. Contributors: E. Willys Andrews, A.M., M.D., Chicago; Joseph Blomfield, B.A., M.D.; Francis J. Charteris, M.D., B.Ch.; John D. Comrie, M.A., M.D., F.R.C.P.; Carey F. Coombs, M.D., F.R.C.P.; Wm. Henry Dolamore, M.R.C.S., L.R.C.P.; Wm. E. Fothergill, M.A., M.D.; John S. Fraser, M.B., Ch.B., F.R.C.S.; Herbert French, M.A., M.D., F.R.C.P.; Edward W. Goodall, M.D., B.S.; E. W. Hey Groves, M.S., M.D., F.R.C.S.; C. Thurstan Holland, M.R.C.S., L.R.C.P.; J. Ramsey Hunt, M.D.; New York; Robert Hutchison, M.D., F.R.C.P.; Cecil A. Joll, M.B., B.S., F.R.C.S.; Frederick Langmean, M.D., F.R.C.P.; Arthur Latham, M.A., M.D., F.R.C.P.; E. G. Graham Little, M.D., F.R.C.P.; Charles Fred Marshall, M.D., F.R.C.S.; R. Foster Moore, M.A., B.C., F.R.C.S.; Maurice Nicoll, B.A., M.B., B.C., M.R.C.S.; Herbert S. Pendlebury, M.A., M.B., B.C., F.R.C.S.; Bedford Pierce, M.D., F.R.C.P.; Joseph Priestly, B.A., M.D., D.P.H.; Sir Leonard Rodgers, C.L.E., Lt.-Col. I.M.S., M.D., F.R.C.P., F.R.C.S., Calcutta; J. D. Rolleston, M.A., M.D.; A. Rendle Short, M.D., B.S., F.R.C.S.; J. W. Thomson Walker, F.R.C.S.; P. Watson-Williams, M.D., M.R.C.S.; W. I. De C. Wheeler, B.A., M.D., F.R.C.S.I.; S. A. Kinnier Wilson, M.A., M.D., F.R.C.P. Associate Editors: Carey F. Coombs, M.D., F.R.C.P. (Medicine), A. Rendle Short, M.D., B.S., F.R.C.S. (Surgery). Cloth, 8vo, pp. 519, illustrated, 37th year, \$5.00. William Wood and Co., New York, 1919.

Recent Ohio legislation in regard to tuberculosis hospitals includes a bill permitting a county which holds membership in a tuberculosis district to provide additional local facilities at its own expense if the district hospital fails to provide adequate accommodations; a bill authorizing a county in a hospital district to withdraw from membership and sell its interest to any other county in the district if the action is approved by the state department of health; and a bill authorizing a county in which a municipal tuberculosis hospital district is located to establish a county hospital or to buy or lease the existing municipal hospital. Eight inter-county hospital districts have been organized up to date in the state, and five districts, including 23 counties, have hospitals in operation.

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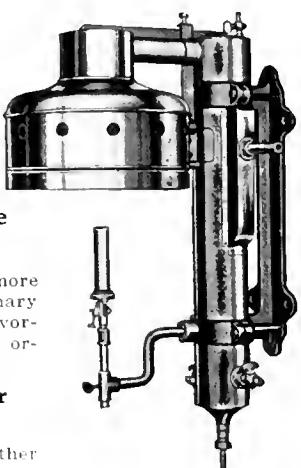
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It quenches thirst more effectively than ordinary water and acts most favorably on the digestive organs. It also

Safeguards Your Employees

Against typhoid and other water borne diseases.

The Improved Rochlitz



Automatic Water Still

Is simple, economical and dependable and is the only still that exceeds its rated capacity.

It is constructed of Cold Rolled Copper lined throughout with Pure Block Tin—no parts to corrode—and may be operated by Gas, Gasoline, Kerosene, Steam or Electricity.

May we send further particulars?

W. M. LALOR CO., Manufacturers

431 S. Dearborn St., Chicago, Ill.

Vetoes Pennsylvania Mosquito Act

On the ground that the measure recently adopted by the Legislature of the state of Pennsylvania will rid the state of the breeding places which produce mosquitoes, Governor Sproul has vetoed the act.

LAW SANCTIONS MEDICAL TREATMENT OF DRUG ADDICTS IN NEW YORK

In response to a request by the health commissioner of the city of New York for a ruling on the question of whether the health department has legal power to use the existing machinery of the department in the treatment of drug addicts, an affirmative reply has been furnished by Corporation Council William P. Burr. The opinion supports the contentions of Dr. Royal S. Copeland that the city should make use of the municipal farm at Warwick, N. Y., for the care of afflicted subjects. The counsel also cites the data gathered by Federal officials showing the alarming extent of the illicit traffic in drugs, and commends the recommendations of Dr. Walter R. Herrick, commissioner of the state department of narcotic drug control, for the suppression of illegal manufacture and sales of narcotics. The opinion further declares that the city may under existing laws accept the offer of the Rockefeller War Demonstration Hospital, to aid in the solution of the problem and in the care of drug addicts.

FORMS CHICAGO HOUSING ASSOCIATION

A promise of early improvement of housing standards in the city of Chicago by the development of residence communities for industrial workers, where homes may be built at cost with long-time payment privileges, comes with the formation of the Chicago Housing Association.

Through the instrumentality of Benjamin J. Rosenthal the association has been organized with the sole object of providing homes at cost, upon easy monthly payments, to purchasers who would be unable to meet the commercial obligations that usually go with the building of homes. The project has been financed by Chicago citizens and a tract of property set aside for the use of builders. The lives of the buyers will be insured to safeguard against death, and other arrangements are planned in case of unavoidable defaults.

An effort will be made to meet the modern thought on homes for industrial workers. Sunshine will be provided for each room in the house, as well as attractive architecture and surroundings. Each community will be developed along lines of artistic unity and a community house will be erected.

The board of directors of the association includes J. Ogden Armour, Judge Bernard P. Barasa, Col. Abel Davis, George W. Dixon, Dorr E. Felt, Charles W. Folds, A. Volney Foster, William Grace, Herman H. Hettler, D. F. Kelly, Albert D. Lasker, Miss Minnie F. Low, Harry H. Merrick, Simon O'Donnell, Benjamin J. Rosenthal, Julius F. Smetanka, John Paul Stafford, Frederic W. Upham, Miss Harriet E. Vittum, Charles H. Wacker, Thomas E. Wilson, Harry A. Wheeler, William Wrigley, Jr.

The officers of the association are the following: Herman H. Hettler, president; William Grace, vice president; M. E. Greenebaum, treasurer; A. Volney Foster, secretary.

A department of occupational therapy has been instituted by the Rochester Tuberculosis Association for the benefit of patients ill in their homes but able to do a little work without overtaxing their strength.

The Value of Sleep is by no means limited to the repairing of bodily wastes—

NEARLY every employer of labor now realizes that the life and habits of employees has a great deal to do with their individual adaptability and efficiency.

Science is not alone in emphasizing the importance of sound, restful sleep. Commonsense observation, time, labor and individual efficiency tests under many and varied conditions, prove the need of *enough* sleep for every person—and, that without it, no worker can perform his or her full share of service in the realm of business.

Civic, industrial, health and welfare workers interested in bettering living, housing and working conditions in their various communities can render no greater service to their people than that of investigating the subject of sleep.

Give and encourage workers—everybody in fact—to live, sleep and work under modern, sani-

tary conditions and a new generation of bright-eyed, alert and efficient people will result.

Simmons National Publicity has always been devoted, directly or indirectly, to this all-important subject of sleep. As the largest makers of metal beds in the world, it is our desire to supplement the efforts of physicians, public health officials, civic and industrial welfare workers by distributing helpful and instructive data on the subject.

Thousands of leaflets and booklets have been supplied without cost to those engaged in this work and more of them are ready to send to those interested and anxious to make their efforts productive of better living and sleeping conditions.

A letter addressed to our main office at Kenosha will bring full particulars regarding the co-operative service.

SIMMONS COMPANY
KENOSHA, WISCONSIN

Accurate Diagnosis First

No industrial hospital is complete without the most modern facilities for diagnosis. They must be ever ready for the immediate attention a patient's case demands.

Diagnosis directs the course of treatment and can only be accomplished by the most advanced and approved aids.

For just such attention by the industrial or municipal physician our

MODERN DIAGNOSTIC OUTFIT

is arranged. It contains all the instruments most generally needed in urgent cases.

Others will be substituted if desired. Stamp "E. S. I. CO." is guaranty of our manufacture.

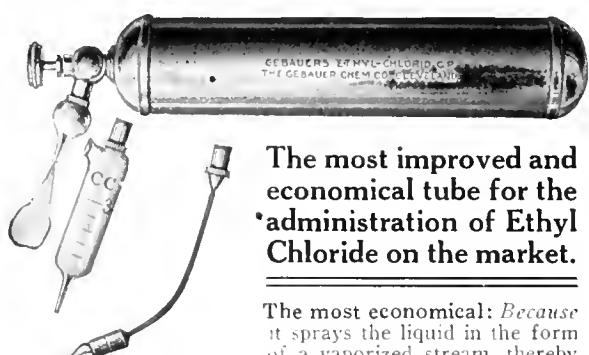


This outfit weighs but 4½ pounds. All instruments can be operated by our battery with adapter or upon direct or alternating current by means of our controller.

Illustrated catalogue sent upon request.

Electro Surgical Instrument Co.
ROCHESTER, N. Y.

Ethyl Chloride (Gebauer's) Local and General Anesthesia



The most improved and economical tube for the administration of Ethyl Chloride on the market.

The most economical: Because it sprays the liquid in the form of a vaporized stream, thereby hastening evaporation and consequent anesthesia, using 1-10 the liquid used by other tubes. Because the ethyl chloride is put up in a metal tube that will not leak or clog and the liquid is guaranteed to maintain its purity indefinitely.

40 grm tube with ordinary spraying nozzle,	\$1.10
80 " " " " "	.75
Flexible spraying nozzle alone,	.50
Graduated dropper,	.50

The flexible nozzle and the graduated dropper will fit either size tube and can be used indefinitely.

For Sale By

THE GEBAUER CHEMICAL CO.
CLEVELAND, OHIO

Rehabilitation Hospitals Train 25,600

Returns of the General Hospitals where disabled soldiers, sailors, and marines are receiving restorative treatment and vocational training contained the names of 25,600 officers and enlisted men of the army on July 1. Most of these men will be in the hospitals from two to four months.

INFERIOR CLINICAL THERMOMETERS BEAR MISLEADING CERTIFICATES

Commerce Reports, July 26, 1919, prints the following items which are taken from *Technical News Bulletin* No. 27 of the Bureau of Standards, Department of Commerce:

Heat Value of Fuels

"Tests of the heating values of fuels have become of great commercial importance, as practically all coal sold on large contracts is paid for on the basis of the heating value found in the tests conducted by or for the purchaser. The instrument used for carrying out this test is the bomb calorimeter, which comprises a strong, steel cartridge or capsule with removable cover, adapted to contain a small charge (about 1-30 ounce) of coal. The bomb is tightly closed and oxygen is introduced under high pressure. It is then put into a calorimeter, the coal ignited electrically, the heat generated being absorbed by the water. The quantity of heat liberated in the combustion of the fuel is then calculated from the rise in temperature of the water. Important aid has been given in the standardization of the testing of coal for calorific power by the issuance by the Bureau of Standards samples of materials of accurately known heat values which afford a simple, precise, and convenient means by which the user of the calorimeter may check up the accuracy of his own determination."

Misleading Clinical Thermometer Certificates

"The clinical thermometer is the fundamental measuring instrument of the physician. Such thermometers, when purchased by the government, are subjected to rigid tests, but those sold to physicians and the public are usually only tested by their manufacturers. Often such thermometers are sold with a misleading certificate, so worded as to give the impression that the instrument has been tested by the Bureau of Standards. As such instruments are nearly always of the cheapest and least reliable grade, a great deal of harm is done in this way. Letters from the bureau warning purchasers against buying such thermometers have been published in numerous medical and pharmaceutical journals. The recently formed American Association of Clinical Thermometer Manufacturers has taken a great deal of interest in suppressing these misleading certificates, and in cooperating with the bureau to this end in the preparation of a new form of certificate. It is the intention so to word this certificate that it can only be used when the instrument which it accompanies has actually been tested by the bureau. If this joint action fails to produce the desired result, congressional legislation will become necessary along the lines recently followed in the state of Massachusetts."

The California Tuberculosis Association has opened a Tuberculosis Preventorium in Marin County, California, where a small group of children from six to fourteen years old, below par physically and likely to become tuberculous, will be housed, receiving medical attention, attending an open-air school, and being given remedial gymnastics.

"DOWNTOWN DYSPEPSIA"

THREE'S a type of indigestion," says a well known New York physician, "that is so common to the men and women who work downtown, that I call it "*downtown dyspepsia*." It is caused by rapid eating under high nervous tension. The food is hardly chewed at all, only slightly softened or mixed with saliva, and enters a stomach which because of the constant activity of the brain, is not prepared to digest it properly.

The individual sufferer, even from the mildest form is far from being a well person. He feels badly most of the time and is inclined to pessimism.

Treatment has usually been unsatisfactory, for it is next to impossible to get these people to change their habits of eating.

But while doing "my bit" in France last year, I learned some facts concerning the effects of chewing gum in promoting the flow of saliva and relaxing nervous tension, which gave me a valuable cue to the treatment of this "*downtown dyspepsia*."

It is evident that the chief details in the causation of this form of indigestion are salivary insufficiency and constant mental concentration.

So for over six months I have been recommending my dyspeptic patients to chew Adams Pepsin Chewing Gum regularly for fifteen to twenty minutes after every meal."

ADAMS Pure Chewing Gum

Adams Black Jack
Adams Chiclets
Adams Pepsin
Adams Spearmint



Adams California Fruit
Adams Yucatan
Adams Sen Sen
Adams Clove

When You Feed People

—Men, Women or Children—

In whose personal welfare and efficiency you are genuinely interested, you should serve only the best of foods.

**Better to reduce the quantity
a little than to sacrifice on
real quality.**

ARISTON Specialties are all prepared in rigid adherence to our fixed and unalterable purpose of assuring



QUALITY FIRST—

Then a Reasonable Price

CALUMET
TEA & COFFEE
Gelatine

Desserts

Cocoa and
Chocolate

Baking
Powder

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and Herbs

Ice Cream
Powders

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Teas and
Coffees

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The Great Cleanser

The ARISTON brand is never placed upon a product which is not of highest possible grade—in both materials and manufacture.

We could reduce our costs in many instances by small sacrifices in quality—but we will not do it.

We sell in competition with numerous lower-cost products, and win out when second orders are placed on the showing made by careful comparisons.

We cater only to those who want the very best.

Does that place you within our market?

If so, let us send you our Price List; then ship you trial orders of our goods.

We'll rest our case on your decision.

**CALUMET TEA &
COFFEE CO.**

409-411 W. Huron St.
Chicago, Ill.

—Dealers Direct with You—

SCHOOL FOR HOSPITAL SUPERINTENDENTS

In order that superintendents of hospitals and physicians who wish to extend their professional studies to cover the problems of hospital administration may have opportunity to enter upon a course of training adapted to their needs, the College of Medicine of the University of Cincinnati has opened a department of hospital administration as a division of the Department of Industrial Medicine and Public Health. Dr. Arthur C. Bachmeyer, superintendent of the Cincinnati General Hospital, will have charge of the new department. The dearth of trained executives for hospital administrative work has been an important factor in the minds of the University authorities in the creation of the department.

COUNTY PROPOSES HEALTH SURVEY

On the advice of Dr. Ray L. Wilbur, San Mateo County, Cal., has decided to have a survey of the health commissions of the county made before the plans for the new county hospital are drawn. Dr. William Palmer Lucas of the Medical School of the University of California, who has recently returned from Europe, where he was decorated by the King of Belgium in recognition of his work in organizing the care of French and Belgian children, has been selected for this task. The study is to include the needs of San Mateo County from a health point of view, with a careful examination of health and sanitary conditions now existing, and of the facilities now existing in hospitals, clinics, welfare associations, etc., now available for meeting these conditions; the careful examination of the county's methods of handling housing, sanitation, and other health questions; and meetings of county sanitary inspectors, county physicians, board of supervisors, social service commission and welfare and public health commission, for the discussion of the various points for consideration.

FORMS NATIONAL INFORMATION BUREAU FROM INVESTIGATING BODY

The National Information Bureau with offices at 1 Madison avenue, New York City, has been reorganized from the National Investigation Bureau. The purposes to be accomplished are to protect the contributing public and to assist in the conservation and proper distribution of the charitable resources of the country during the reconstruction period.

The three definite purposes of the Bureau are:

1. The establishment of reasonable standards of administration and work for national social and philanthropic agencies and the endorsement of agencies which meet these standards.

2. The protection of the public from imposition.

3. The assisting, so far as may be possible, of national agencies in their efforts to adapt their programs and their work to each other and to the communities in which they are engaged.

The officers of the Bureau are: Gustavus D. Pope, president; Paul L. Feiss, vice-president and treasurer; Paul D. Cravath, second vice-president; Allen T. Burns, secretary; Barry C. Smith, director.

The Board of Directors of the Bureau are as follows: C. M. Bookman, Allen T. Burns, H. S. Braucher, Paul D. Cravath, Robert W. De Forest, Paul L. Feiss, Frederick A. Geier, Porter R. Lee, Owen R. Lovejoy, Samuel Mather, J. Horace McFarland, Francis R. McLean, William J. Norton, Gustavus D. Pope, Lawson Purdy, Dr. Rush Rhees, J. D. Robinson, John R. Shillady, and Willoughby Walling.



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and

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as well as

For the Private Practitioner

THE CHICAGO LABORATORY

The personnel and equipment of the Chicago Laboratory insures expert findings in all tests whether chemical or analytical in the shortest possible time consistent with high-grade work.

Containers for collections and specimens will be furnished gratis upon request, and if you do not have our Fee Table write now for it.

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For twenty-five years the firm of V. Mueller & Co. has supplied the needs of surgeons and hospitals.

Mueller materials are known for their excellent quality and pattern. Unusual facilities are available to those contemplating the installation of industrial hospitals or first aid rooms.

A complete stock of surgical instruments, furniture and apparatus for immediate delivery means service which cannot be found elsewhere.

Our estimating department will gladly submit plans and quotations.

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SCIENTIFIC—EFFICIENT ECONOMICAL *Pain Relieving Methods*

You appreciate the value of sunlight as a therapeutic agency; you know about the pure white rays, the violet rays and the ruby screen. The Sterling Therapeutic Lamp combines all these agencies in an efficient and economical manner.

STERLING THERAPEUTIC LAMP "The Light That Heals"

Has proved one of the most efficient methods of relieving pain; its effect is soothing and analgesic; its rays are germicidal. The warm, soothing, soft rays penetrate and vitalize every cell and tissue, new cell growth is stimulated; the body is refreshed and vitalized.

In rheumatism, neuralgia, neuritis, lumbago, in nervous conditions and a score of other symptoms and diseases, including skin and scalp disease, the Sterling Therapeutic Lamp is invaluable for the relief from pain, inflammation and for corrective purposes.

With stand it is ideally adapted for additional use as a spot light for operations and examinations.

Widely used in sanitariums, physicians' offices and hospitals; special sizes are adapted for the use of patients under the supervision and direction of the family physician.

Write for our interesting Illustrated Booklet showing the various sizes and uses of the Sterling Therapeutic Lamp.



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Please send me without cost or obligation your Free Illustrated Booklet describing the Sterling Therapeutic Lamp and its uses.

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A. M. A. STUDIES HEALTH INSURANCE

The report of the Council on Health and Public Instruction, wherein there has been embodied an outline of the policies and work of the American Medical Association for the coming year, which the Council recommended to the House of Delegates at the recent Atlantic City convention, says this of social or health insurance:

"There is to-day no subject in the field of social medicine that deserves and will require more careful, exhaustive, dispassionate, and unprejudiced study than social insurance, or that will, whatever the final conclusions, demand greater tact, diplomacy, and good judgment in practical handling."

It is predicted by the Council that, within a year, social insurance will be a vital issue in a number of states. This being true, the Council urges that the active interest of physicians is demanded for properly appraising the plan and directing public policy in the matter of health insurance.

The Council states the problem as it appears in the United States, apart from the data and experience of other countries, in the following paragraphs:

"There is in this country a certain amount of illness among those whose gross annual income is below an amount that will permit them to bear the expense of such disabling and incapacitating illness without being seriously and perhaps permanently handicapped or crippled thereby.

"Such disabling and crippling illness being conceded, if the individual is not able to carry it alone, then the burden must be lightened in some way. This can be done by increasing the income of the individual and thus elevating his economic status to a point where he can carry his own burden; by reducing the amount of sickness through the enlarging and improving of state public health activities; or by distributing the cost of existing disabling illness among the three parties at present responsible, namely, the individual, the industry and the state, so as to relieve the individual of from 60 to 80 per cent of his burden. A fourth possible procedure, not exactly to be regarded as a remedy, but as a possible line of action, is the *laissezfaire* principle of permitting existing conditions to continue and remedy themselves if possible without interference. The first of these proposed plans might be called the economic remedy; the second, the state public health remedy; the third is social insurance, and the fourth is no remedy at all.

"In this discussion, many questions arise that cannot be answered with our present knowledge. What is the amount of sickness incurred by the average wage earner in the course of the year? How much of a burden is this to him and to his family, through loss of wages, medical attendance, nursing and care, incapacity or reduced productivity consequent on illness, nonemployment resulting from illness, etc.?

"What is the average amount which the individual loses each year through sickness? How much of this loss is due to preventable disease which can be eliminated by increased state health activities and by the better organization of health agencies? What is the minimum annual income that will enable the individual to carry successfully the burden of his own disability? How many American families have an income below this minimum?

"If the first remedy proposed, that of increasing the annual income to a point where each individual can carry his own burdens, seems best, how is this desired object to be accomplished? If the second remedy is adopted, namely, increase of governmental health activities to a point where preventable disease is reduced to a minimum, how large a burden of nonpreventable disease will remain? Will not the increase of governmental health activities to such a point produce just as marked and radical a change in the medical profession as the proposed health insurance? What effect will the plan proposed have on the work and income of physicians? Without providing for the unemployed and the indigent, who would still, as in England, have to be cared for under poor laws and charity organizations, would not the increased profes-

Continued on Page 34

Pituitary Extract

THE clinical use of Pituitary Extract is two-fold: (1) *Obstetrical*, in cases of inertia or delayed labor when not due to mechanical causes; (2) *Surgical*, to prevent and relieve post-operative "gas pains"; to increase diuresis; to prevent surgical shock; and to prevent and control hemorrhage.

Pituitary Extract—*Lederle* is physiologically standardized according to the method of Roth (U. S. Hygienic Laboratory Bulletin No. 100). It is adjusted to conform to *Liquor Hypophysis, U. S. P. IX* and is not in any other strength.

According to Speath (U. S. Hygienic Laboratory Bulletin No. 115):

"Since in clinical practice it is a simple matter to vary dosage, it seems reasonable not to raise the strength of the U. S. P. IX requirement but to inject, if necessary, as much as 2 cubic centimeters of pituitary solution in order to produce the required effect."

Dosage of Pituitary Extract—*Lederle*

Obstetrical, $\frac{1}{2}$ to 1 cc

Surgical, 1 to 2 cc

Supplied in the Following Packages:

Package of six $\frac{1}{2}$ cc ampules,.....	\$.60
" twelve $\frac{1}{2}$ cc "	1.10
" six 1 cc "	1.00
" twelve 1 cc "	1.90
" one hundred 1 cc ampules.....	15.00

Requests for further information are invited.

Lederle Antitoxin Laboratories
511 Fifth Avenue
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ARE DEVOTED TO MAKING

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A. M. A. STUDIES HEALTH INSURANCE

(Continued from Page 32)

sional income from cases of the insured, whom the doctor to-day takes care of for little or nothing, increase the average professional income, provided the compensation for professional services could be properly determined? Would not this increase amount to more than the loss due to lowered rates? If the proposed social insurance can be shown to be necessary and to be the best solution of the problem involved, can the medical profession as a class successfully oppose it simply on the ground that it may interfere with or disturb our professional income and livelihood?"

Dr. Alexander Lambert presented the report of the Committee on Insurance, which is accompanied by data on the cost of sickness and the average family expenditure, the average amount of sickness, distribution of sickness, the extent of present medical care among wage earners, wages, and the cost of living, and the interest of the medical profession in sickness insurance. Following are quoted several brief excerpts from the material gathered by the committee:

"Over and above the loss in wages must be reckoned the cost of medical care for employees and their families. Certain fee schedules of the medical, dental, and nursing professions and for hospitals were collected by the Pennsylvania Health Insurance Commission. Considering the professional skill and the responsibility involved, many of the fees are most moderate. They are given to show what employees in this state must pay, under present conditions, to receive medical care on an independent full-cost basis. They cannot be taken to represent the actual charges made but represent merely the standard minimum fee for regular professional services, exclusive attention from specialists. . . .

"Naturally, many employees cannot fail to pay these charges. As a result, we have physicians and hospitals giving service free, or at reduced rates, a host of medical or semi-medical charities, and throngs at the free dispensaries, as well as numerous cases of entire failure to receive medical care where it is sadly needed. . . .

"Any attempt to aid in the solution of the sickness problem must have as its goal the complete restoration of the sick man or woman to health. To this end, immediate and adequate medical, surgical, and institutional care must be made available, and the contingency of suspension of earnings during the periods necessary for recovery must be met. This is but justice to the disabled person, to industry, and to the community at large."

In conclusion the following comment is offered by the committee: "The responsibility, therefore, is threefold—communal, industrial and individual. But the burden to-day is almost entirely individual. The community has accepted part of its liability and endeavored, by sanitation, preventive medicine and hospitalization, to improve the situation. Industry has, until now, evaded its entire responsibility and liability. The individual still bears the brunt of the burden and the cost of sickness as a personal calamity. The community and industry have begun to realize and accept their share of the liability. We have in the past received from southern and southeastern Europe enormous numbers of hardy, vigorous laborers and industrial workers. We have used them lavishly, and their labor extravagantly. We have neither wisely harbored their energy nor salvaged the damaged. We have recklessly used this labor as if the supply were unlimited. We have indeed treated it as we dealt with our forests and our mines. We have been mining out our labor and burning it up. Now the war is over, hundreds of thousands of these peoples are returning to their former

(Continued on Page 36)

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(Arsphenamine-Metz)		
0.1 gram.	\$0.60 per ampule
0.2 "75 " "
0.3 "85 " "
0.4 "	1.00 " "
0.5 "	1.25 " "
0.6 "	1.50 " "

10% Discount in Cartons of 10 or More Ampules

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Dosage	I, 0.15 gram.....	\$0.75 per ampule
"	II, 0.3 "	1.00 " "
"	III, 0.45 "	1.25 " "
"	IV, 0.6 "	1.50 " "
"	V, 0.75 "	1.75 " "
"	VI, 0.9 "	2.00 " "

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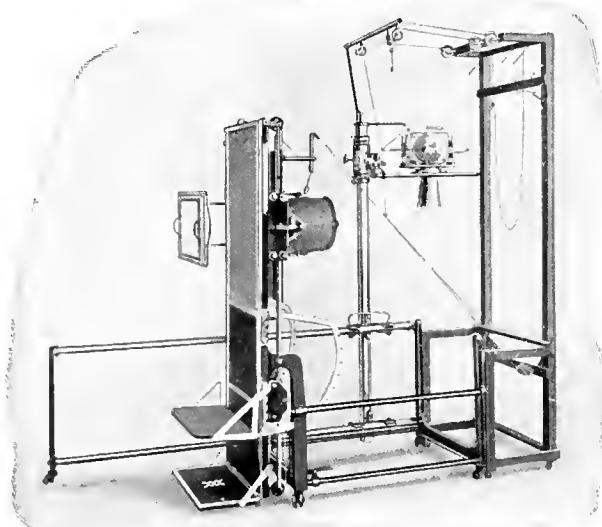
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The time-tried and result-producing antipyretic and analgesic. These standard products can be obtained through your druggist or

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When you are interested in an x-ray equipment representing the most advanced ideas consistent with conservative practice, to facilitate and expedite your work, then investigate a Meyer equipment.

MULTOSCOPE, a stereo-radiographic table with tube holder and radioscope for vertical, horizontal and inclined position, with self-contained aerial and high tension switch.

KLINOSCOPE, a fluoroscopic apparatus for vertical and horizontal fluoroscopy.

TRANSFORMERS, with a marked efficiency and conservation of tubes.

DUPLEX STEREOSCOPE, enabling the surgeon and roentgenologist to observe the view at the same time.

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LIKE MOTHER'S MILK IN THREE RESPECTS

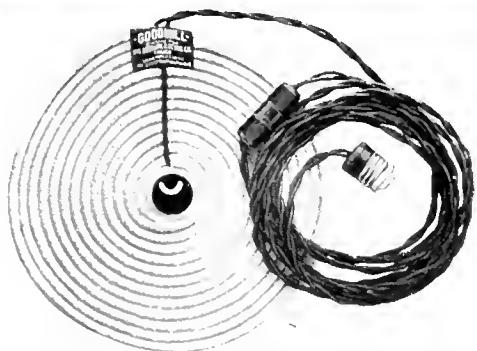
Dennos Modification is not recommended as better than mother's milk, but when artificial feeding must be relied on, remember this:

1. Cow's milk plus Dennos may be almost identical in composition with mother's milk.
2. Cow's milk modified by Dennos becomes soft curdling and bland like mother's milk.
3. Cow's milk modified the Dennos way becomes safer from germs, because heating is required in the preparation.

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At the Cincinnati Convention
THE GOODWILL ELECTRIC COMPANY

Anticipates the pleasure of demonstrating to you the three latest types of the

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"This pad has more than justified the extreme care and excellent materials put into its manufacture."

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A. M. A. STUDIES HEALTH INSURANCE

(Continued from Page 34)

homes, not to return here. This country is facing a scarcity of labor, and must care for it and salvage it, when injured, as never before.

"The remedy for this situation lies economically in a redistribution of costs, not of adding new costs, but rearranging the present method of expending the costs already being expended. Large numbers of wage-earners, probably a majority of them, now spend each week enough money on funeral insurance, that they may be sure of a decent burial, which would equal or more than equal their share of any just sickness insurance scheme to give them sick benefits, maternity and adequate medical care, and a \$100 funeral benefit. Improved medical care must come from more cooperative and less purely individualistic care from the medical profession. Free choice of physician by patient, and present relation of patient to physician, and just and assured remuneration for work done by the physician can easily be assured to the physicians under an insurance plan.

"Preventive and curative medicine can equally be more fully developed with free play for individual development of physicians. The alternatives offered by the funeral insurance companies are a further development of preventive medicine, state care of the sick by salaried physicians, and leaving the profits of funeral insurance undisturbed."

BIRTHS AND INFANT MORTALITY

The preliminary report of the Bureau of the Census for 1917 contains a statistical summary of births and infant mortality. The data is published in *Public Health Reports*, June 27, 1919, and follows in part:

"In the birth-registration area of the United States 1,353,792 infants were born alive in 1917, representing a birth rate of 24.6 per 1,000 of population. The total number of deaths in the same area was 776,222, or 14.1 per 1,000. The births exceeded the deaths by 74.4 per cent. For every State in the registration area, for practically all the cities, and for nearly all the counties, the births exceeded the deaths, in most cases by considerable proportions. The mortality rate for infants under 1 year of age averaged 93.8 per 1,000 living births.

"The birth-registration area, established in 1915, has grown rapidly. It comprised, in 1917, the six New England States, Indiana, Kansas, Kentucky, Maryland, Michigan, Minnesota, New York, North Carolina, Ohio, Pennsylvania, Utah, Virginia, Washington, Wisconsin, and the District of Columbia, and had an estimated population of 55,000,000, or about 53 per cent of the estimated total population of the United States in that year.

Comparison with 1916

"The birth rate for the entire birth-registration area fell below that for 1916 by two-tenths of 1 per 1,000 population; but the death rate was less by six-tenths of 1 per 1,000 than in 1916. Thus, the excess of the birth rate over the death rate for 1917, which amounted to 10.5 per 1,000, was somewhat greater than the corresponding excess for 1916, 10.1 per 1,000, although it fell slightly below that for 1915, 10.9 per 1,000. If the birth and death rates prevailing in any one of these three years were to remain unchanged, and if no migration were to take place to or from the area to which they relate, the population of the area would increase at the rate of slightly more than 1 per cent per annum, or a little more

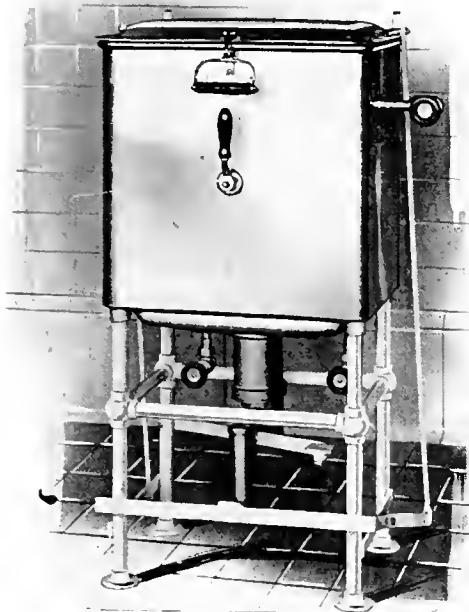
(Continued on Page 38)

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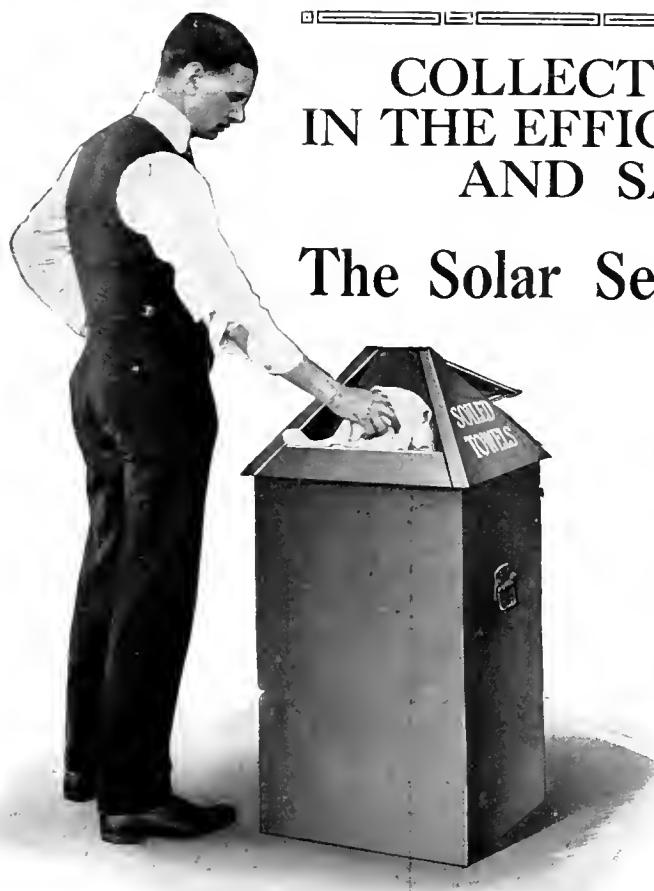
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BIRTHS AND INFANT MORTALITY

(Continued from Page 36)

than 10 per cent in a decade. This would be about half the rate—21 per cent—by which the entire population of the United States increased between 1900 and 1910.

White and Colored

"Of the total number of births reported, 1,280,288, or 24.5 per 1,000, were of white infants, and 73,504, or 25.8 per 1,000, were of colored infants. The death rates for the two elements of the population were 13.7 and 22.5 per 1,000, respectively.

Infant Mortality

"The infant mortality rate—that is, the number of deaths of infants under 1 year of age per 1,000 born alive—throughout the birth-registration area as a whole was 93.8 in 1917, as against 101 in 1916 and 100 in 1915. This is equivalent to saying that in 1915 and 1916 of every 10 infants born alive 1 died before reaching the age of 1 year, whereas in 1917 the corresponding ratio was a trifle more than 1 in 11. Among the 20 States these rates ranged from 67.4 for Minnesota to 119.9 for Maryland; and for the white population separately the lowest and the highest rates were, respectively, 66.3 for Washington and 109.5 for New Hampshire.

"The infant mortality rates vary greatly for the two sexes and for the various nationalities. The rate for male infants in 1917, 103.7 per 1,000 living births, was nearly 25 per cent greater than that for female infants, which was only 83.3. When the comparison is made on the basis of race or nationality of mother a minimum of 66.2 per 1,000 births is shown for infants with mothers born in Denmark, Norway, and Sweden, and a maximum of 172.6 for infants with mothers born in Poland, while for Negro children the rate was 148.6.

Plural Births

"The reports from the registration area show the birth of 14,394 pairs of twins and 155 sets of triplets in 1917—in all, 29,253 infants, or a little more than 2 per cent of the total number born.

Number of Children Per Family

"The reports for 1,241,722 of the births occurring in 1917 contained information as to number of child in order of birth. Of these reports, 339,042 were for the first child born to the mother, 264,044 for the second child, 191,528 for the third, 134,331 for the fourth, and 95,931 for the fifth. In the remaining 216,846 cases, or 17.5 per cent of the entire number for which information upon this point was obtained, the total number of children borne by the mother was 6 or more; in 37,914 cases it was 10 or more; in 1,600 cases, 15 or more; in 56 cases, 20 or more; and in 1 case, that of a colored woman, the birth of a twenty-fifth child was reported.

"The total number of children borne by the mothers who gave birth to these 1,241,722 infants in 1917, in whose cases data were available as to previous births, was 4,093,908. The reports for 1,194,621 of the births occurring in 1917 contained information as to the entire number of children borne by the mothers and still living, and gave a total of 3,443,466, or an average of very nearly 3 living children in each family in which a birth took place in 1917."

If any misanthrope were to put, in my presence, the question, "Why were we born?" I should make reply, "To make an effort."—Charles Dickens.



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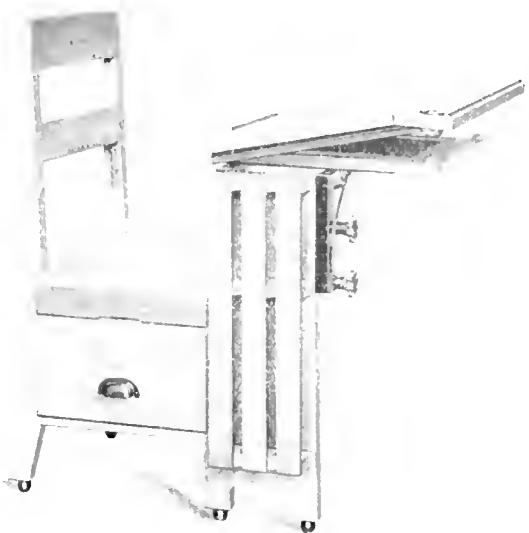
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THE MATERNAL MORTALITY OF CHILD-BIRTH AND THE TEACHING OF MIDWIFERY*

One of the problems which will require earnest consideration by the new Minister of Health is the present position of the teaching of midwifery to medical students and midwives. Obstetrics medicine is essentially the branch of medicine in which prevention can and should play a very large part. There is to all intents and purposes no cure for puerperal fever, and yet it is a disease which is almost entirely preventable. That it is not more often prevented is one of the anomalies, and, indeed, scandals of the present-day practice of medicine. As Mr. Victor Bonney points out in his instructive and important paper read before the Obstetrical Section of the Royal Society of Medicine (see *Lancet*, vol. exvi, No. 4993), by far the commonest cause of death in childbirth is puerperal sepsis. Even as recently as 1915 over 1,200 women lost their lives from this cause in England and Wales alone, and yet the occurrence of a case of septicemia in that year, apart from military surgery, in a surgical ward of a well-conducted hospital would have been regarded as an event indicating some very serious defect in the management of the case. By the exact practice of asepsis or antisepsis surgeons are able to undertake operations in any part of the body in the confident expectation that there will be no septic infection, and yet at the present day puerperal fever, which is, of course, only surgical septicemia occurring in the parturient woman, claims a very large number of victims and has a death-rate which has altered relatively very little during the last seventy years. It can be proved readily that the safest thing that can happen to a woman in childbirth is that she should deliver herself without any artificial aid, and it may be said without fear of contradiction that if in all cases of normal labor the patient delivered herself without the assistance of either a doctor or a midwife a large number of lives would be saved each year. This is a hard saying, but one which we maintain is true; in other words, the great majority of women who die from puerperal sepsis are infected by their attendants.

That in proper surroundings and with proper aseptic or antiseptic precautions puerperal fever is preventable is proved by the experience of lying-in hospitals; why, then, is it not prevented in private practice? The answer is to be found in Mr. Bonney's statement that "not much more than a bowl of antiseptic lotion stands between the practice of the present day and that of the 'sixties.' But a bowl of antiseptic lotion is not Listerism." It is promising to note that the teaching of midwifery and its defects is now engaging the attention of those who instruct in that subject, and there are many among the younger teachers who recognize the changes that must be brought about in the near future if any real improvement is to be effected. The apathy of the medical profession and of the public in this matter has been very marked; many writers have drawn attention to the prevalence of puerperal infection, the resulting morbidity and mortality of child-birth, and the grave consequences they entail, but the medical profession has been content to go on in the old way, and the teaching of our medical schools has done little or nothing to remedy a state of things in which, while septic infection following a surgical operation is regarded as a rare accident to be rigorously investigated, sepsis following a confinement is looked upon almost as a necessary evil in a certain proportion of the cases. We

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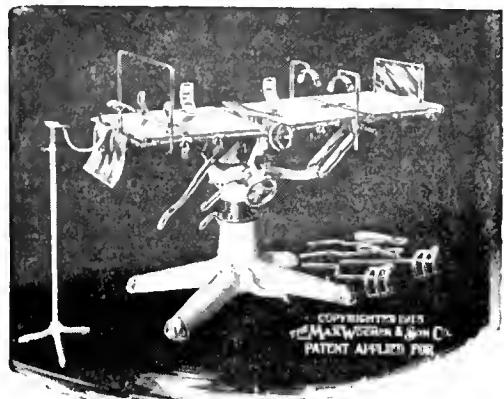
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MATERNAL MORTALITY OF CHILDBIRTH

(Continued from page 401)

may not be inclined to agree with all Mr. Bonney's statements or conclusions, but we cannot deny that he has laid bare the real cause of the evil and that he has propounded the appropriate remedy. Some of his critics may think it right to make fun of his dislike of the anus and his proposal to paint the perineum with one or other of the colored aniline antiseptics, but we are glad to think that he has had the courage not only to expose the faults which are associated with present-day midwifery practice but also to lay down the only sound principles upon which the needed remedies can be based.

The present methods of teaching midwifery to medical students are extremely faulty, and if the conditions in London are not comparable in all details to those at certain other educational centers, none the less they call for urgent reform. The provision of sufficient accommodation in properly equipped (and properly staffed) lying-in hospitals, to which any woman who desires can obtain admission, is most pressing—it is one of the first problems which the new Ministry of Health must consider; while the education of the public in the urgency and importance of these matters calls for the cooperation of every member of the medical profession, and is a part of the solution of the problem in which everyone can take his or her share. The defective training of the student is mainly due to the fact that the major part of the teaching is done by registrars and residents who are themselves in the position of learners and often have had but little experience. While in medicine and surgery most of the practical work is done by members of the honorary staff of the hospital in surroundings which lend themselves to proper and efficient teaching, in midwifery practical teaching of this kind is not done at all or is carried out by junior men, sometimes in the lying-in ward of a general hospital, of which there are only three in London, or more often in the extern maternity department, among the entirely unsuitable surroundings which are portrayed so vividly by Mr. Bonney. There is only one remedy—the teaching of midwifery must be done in the future in properly equipped lying-in hospitals under the same favorable conditions which obtain in the case of medicine and surgery. If the plan of providing whole-time properly paid teachers is to obtain in the latter two subjects, then the same must apply to midwifery, and in this way only, in view of the special conditions surrounding the practical training, will it be possible for the student to obtain his teaching in midwifery from teachers of equal experience and standing to those who are engaged in teaching him medicine and surgery. This will entail the provision of spacious central institutions properly equipped and officered, sufficiently large to enable all the students in London, for example, to be trained in them, and furnished with all the laboratory facilities necessary, not only for the carrying out of the pathological investigations necessitated by the treatment of the patients, but also for the carrying on of efficient research. In such surroundings only will it be possible for the student to be taught on the lines laid down by Mr. Bonney, with which we are in complete agreement.

Women on English Research Board

The Industrial Fatigue Research Board of England has been completed by the addition of the names of Miss Winifred C. Cullis, D.Sc., head of the department of physiology at the London School of Medicine for Women, and Miss Mona Wilson, National Health Insurance Commissioner since 1912.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians
& for Others Interested in Administrative, Industrial
& Social Health Problems

Editors ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., and JOHN A. LAPP, LL.D.

Managing Editor JOHN A. LAPP

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Volume 1.

OCTOBER, 1919

Number 6

NOTES AND COMMENT

THE AMERICAN PUBLIC HEALTH ASSOCIATION

THE AMERICAN Public Health Association will hold its forty-seventh annual meeting in New Orleans, October 27-30, 1919. The announcement of this meeting grows increasingly in interest each year as the expansion of the organization continues and as the subject matter with which it deals is recognized as more vital to national welfare.

There was a time when the persons attending the American Public Health Association consisted almost entirely of public health officials or men engaged directly in the work of public health. The concept of public health has broadened to such an extent that it is now a gathering of all types of professional people engaged in modern medicine. Men in public life and in private enterprises too are giving thought to the subject in its various aspects.

The program of the forthcoming session is broad in its scope and practical in its bearings upon existing health problems. It offers much to the health officer, to the practising physician, the industrial hygienist, and to the sociologist, besides being of direct concern to men of affairs who guide the Ship of State.

Public health problems have become our first problems, and the American Public Health Association is the general clearing house for the discussion and formulation of the principles and plans in the public health field. Its program should receive the most earnest attention of all those who believe that national safety and security depend in the ultimate upon the vitality of the people.

THE RED CROSS PEACE PROGRAM BROAD IN SCOPE

IN ANNOUNCING the peace program of the Red Cross Dr. Livingston Farrand, chairman of the American Red Cross Central Committee, expressed briefly the broad scope of the program and set forth a clear vision of the future. "No organization," he said, "can speak dogmatically. We can see only the next step ahead, and we do not intend to plunge blindly, hoping to land on our feet." Of the health program, he said:

"The greatest contributing factor in disturbing the happiness of mankind reduces in the last instance to questions of physical wellbeing—to problems of health and disease. A large portion of the disease of the world is preventable disease. Nations have been coming to a point where they realize that fact, and they are turning—the whole world is turning to organizations of every kind for help in the prevention of preventable disease. There has been no hesitation in reaching the conclusion that the great problem of the world is the problem of disease."

"This is not talk; it is fact. We are now seeing that these things that have been known for years by science—by medical science—are being realized by the people. And the question the people are everywhere asking is 'What are we to do?' They are looking for help; they are looking for guidance; and they naturally look to the organizations that are built upon such a basis and have been guided in such a way as to beget confidence."

Pointing out the fact that the Federal Government has no constitutional authority to work out the problem of health, and that beginnings are

only just being made in a few of the advanced states in the provision for adequate health machinery, he showed the necessity for stimulating by private agencies an appreciation of the opportunity and a realization of what can be accomplished. He emphasized the necessity of coordination of the various movements for public health, pointing out that "all of these movements are single different sides of the great problem of the improvement of health and the prevention of disease and misery."

"Furthermore," he said, "we have here an organization that represents every one of the national interests, that knows no party whatever, that knows no creed whatever, that has attached to it every type of man, woman, and child in the United States, and we propose to put this energy behind a great movement for coordinating and bringing these interests so far as possible together."

Lastly, he emphasized the necessity of a nursing program and indicates the line along which the Red Cross will work. "The biggest activity in this field which the Red Cross has already undertaken," he said, "is a great nursing program. The entire modern health movement depends upon the adequate development of the visiting nurse. We are doing the most important thing in taking that step first."

The unfolding of the program of the Red Cross as set forth by Doctor Farrand will be watched with keen interest and appreciative sympathy for the ends in view and for the Red Cross as the agency in securing them.

RECRUITING PUBLIC HEALTH NURSES

ONE of the most interesting by-products of the war upheaval has been the tremendous impetus given to the public health nursing movement.

The public has learned what it is to be without nurses, the lesson being pointed by the catastrophe of the influenza epidemic, when every available nurse was invaluable and when the pressing necessity of cooperative utilization of nursing service became obvious to everyone. As a result, the public health nurse is deservedly popular and the demand for this new type of public servant greatly exceeds the supply. It is probable that this condition will continue for some time to come, as the present available educational opportunities are not sufficient to cope with the task of preparing the very large number of new recruits needed for this field. It is estimated that there is now a demand for from seven to ten times as many public health nurses as are available.

Laws making the employment of public health nurses from public funds mandatory or permissive are now on the statute books of the following states: Arizona, Idaho, Iowa, Kansas, Kentucky, Minnesota, Nebraska, New York, North Dakota, Ohio, Oregon, South Dakota, and Wisconsin. In addition, industrial managers in increasing numbers are alive to the relation of physical health to the efficiency of the worker and are clamoring for adequately trained nurses. The informal bureaus of occupation maintained by the National Organization for Public Health Nursing and the Red Cross have far more applications than they can care for.

Here once more we have an example of how easily a wholesome and most welcome social innovation can outrun its power to organize itself. Before the war the National Organization for Public Health Nursing and the Town and Country Nursing Service of the Red Cross, were endeavoring to demonstrate the value of public health nursing in terms of the welfare of the community served. It cannot be said that the need for such propaganda has passed; indeed a large part of the effort of the Red Cross would appear to be directed toward completing the education of tardy communities as to the indispensability of the public health nurse. But it is certainly true that the demand already created far outruns the supply.

In recognition of this fact, the National Organization for Public Health Nursing is devoting a large proportion of its resources to educational and recruiting activities. It is endeavoring both to direct a growing percentage of student nurses into the public health field and to recruit from the high schools, normal schools, and colleges, more high grade material for this new profession whose future potentiality may be judged by its vitality now, when the movement is only in its infancy.

There is a further complicating factor. In many states and indeed in many counties, we have the spectacle of a variety of both specialized and general nursing services, doing work in the same field and exhibiting neither uniformity of standards as to personnel and service nor a sufficiently positive disposition to coordinate their efforts. There is, therefore, the greatest possible need of standardizing and coordinating agencies. This has been from the beginning the chief task of the National Organization for Public Health Nursing, but the movement has far outgrown the capacity of any private organization for supervision and standardization. What is needed is the consolidation of the public health nursing movement with the normal processes of democratic government. In other words, the only agency that can really

handle the public health nursing situation is the state. The National Organization for Public Health Nursing has clearly recognized this fact as evidenced by the emphasis given to legislative work on its 1919-1920 program. Three suggested bills have been prepared of which the third, which provides for a division or bureau of public health nursing in the state department of health with a supervisor of public health nursing serving as one of its officials, is the most interesting and indeed the one which the National Organization for Public Health Nursing will urge wherever possible. The other two suggested bills, which are extremely general in their provisions, and, incidentally, the more practical on that account, provide simply for the employment of public health nurses from county funds. One of the bills is mandatory, the other is permissive.

In determining the type of legislation to be advocated, the National Organization will be guided entirely by the conditions encountered in the different localities. It will in all cases work in thorough accord with the public and private agencies concerned.—ELLA PHILLIPS CRANDALL.

THE NATIONAL SAFETY COUNCIL

THE National Safety Council which held its Eighth Annual Safety Congress in Cleveland, October 1-4, 1919, is an organization of broad scope and unique power in the field of industrial betterment. Organized only seven years ago, it has attained a large membership and very real influence in the solution of important industrial problems. In its beginning the Council was concerned almost entirely with the subjects of accident prevention and safety devices. It was very soon seen, however, that safety in industry was far wider in its scope than the prevention of accidents. On the one hand it was seen that pre-existing conditions were the cause of many accidents, and that disabilities aggravated or infected on account of being neglected were even more serious. On the other hand it was seen that sickness in the industry was a cause for much labor turnover and for much inefficiency among employees. The result of this enlarged view was that the work of the Council broadened into a consideration of all of these factors which condition the well-being of the workers in industry. A separate health service section was organized and the subject of health in industry was brought into many of the sectional and general meetings.

The program for this year shows more than fifteen noteworthy papers in six different sections on the distinct subject of health. MODERN MEDICINE will publish the important papers on health

problems in the November issue. Subjects of Physical Examination, Lead Poisoning, Industrial Health Hazards, Subnormal Workers, Industrial Dermatoses, Bad Teeth and Fatigue, Industrial Clinics, Health Education in Industry, Coordination of Industry and Community Health Activities, Malingering, the Treatment of Burns, the Lessons of War Surgery, and Humanizing a Steel Plant, indicate the broad scope of the Council's work in health. In addition, the Council has a special section on Employees' Benefit Associations which deals with the insurance of health.

Physicians have come to have such an active relation to industry through the establishment of industrial medical departments and through the emergency calls which are made in cases of accidents as well as their relation to industry as consulting sanitarians and hygienists that the work of the Safety Council should be of special interest and information for them.

FACTORS CAUSING DISEASE

A CURIOUS example of reasoning without facts is found in the recent report of the majority of the Illinois Commission on Health Insurance, regarding the individual, the community, and industrial causes of disease. The majority of the Commission say:

"In our opinion nearly all disease is traceable in its ultimate causation to the individual, to the violation, through lack of understanding or wilfulness, of the well recognized laws of health or hygiene; the refusal to use the facilities for correction of physical conditions which will become disabling; excesses in personal conduct; and, a most important factor, the inherent limitations of vitality which vary in individuals from those merely able to keep alive the spark of life to those who are of the most robust and vigorous type."

And further, they add: "Any statement of a proportional responsibility of the state, industry, or the individual as factors causing disease in the aggregate is without basis in ascertained fact or creditable evidence."

The Commission made no investigation of this particular subject. There are no facts given in the report of the investigator attempting to show the individual, community, or industrial causes. The flippant statement that "nearly all disease is traceable in its ultimate to the individual" has no basis in the report, nor in the numerous investigations made by medical associations, industrial boards, and health departments.

Illinois was among the first states to consider the matter of occupational disease and the Illinois report on the subject in 1911 was the pio-

neer. The majority of the Illinois Health Insurance Commission evidently ignored all the findings of that commission and of the two-year investigation by the State Department of Health of Ohio, the numerous and exhaustive investigations of the Department of Labor Statistics at Washington, and health departments all over the country.

Furthermore, they seem to ignore the fact that nearly three out of every thousand people in the United States died last year on account of influenza and pneumonia developing out of influenza. No sensible person would presume to say that the deaths from influenza had their origin in individual causes.

That a great part of disease is due to individual causes no one doubts; but to say that practically all of it is traceable to the individual is to ignore all of the factors of heredity, early environment and neglect, community neglect, industrial hazards, and failure to educate people in health. If all men were super-intelligent and attentive to the rules of health, it might be that the community and industrial dangers could be warded off, and perhaps some of the inherited defects overcome; but this does not warrant the statement, in our present civilization, that the individual is to blame for it all. Why the majority of the Illinois Commission should have announced such a preposterous proposition is hard to understand.

SIR CHRISTOPHER ADDISON, M.D., B.S., F.R.C.S. ENGLAND'S FIRST MINISTER OF HEALTH

ON JULY 1, England's new Ministry of Health was inaugurated with Sir Christopher Addison as the first Minister. The Local Government Board went out of existence on that day and all of its functions were incorporated in the Ministry of Health. Doctor Addison, the first Minister of Health, has had a long



experience in dealing with the problems which he now faces as Minister. Doctor Addison was born June 19, 1869. He has been Hunterian Professor and Examiner in Anatomy at the Universities of Cambridge and London; formerly lecturer on anatomy at St. Bartholomew's Hospital; member of the Research

number of years editor of the *Quarterly Journal of Medicine*.

Medical men in America will be encouraged by the fact that a physician of high standing and large experience has been intrusted with the carrying out of the reorganization of health work in England along broadened lines.

THE ENDOWMENT OF MATERNITY

THE attention of many thinking people has been focused upon the problem of providing adequate maternity care for mothers by accounts of England's experience, as related by Sir Arthur Newsholme, at the regional conferences on child

welfare standards which have taken place in several large cities recently under the auspices of the Federal Children's Bureau. He termed the English plan the "first great step in endowing maternity and making maternity safe for mothers." The endowment of maternity, the better security offered to mothers in recognition of the problems of motherhood, and the better safeguarding of

the young child's health are some of the fruits which should come from the extension of public health service for mothers.

In this country the same ideal has found support in common from the public health agencies that provide maternal medical and nursing service, and the child welfare organizations. The two factors working together will hasten the day when better health standards shall exist, when there will be fewer school children handicapped by preventable defects, and the young men of the nation can meet the requirements of military service, should occasion arise, without the rejection of 30 per cent for physical deficiency. The Nation owes this recognition to its mothers.

AIR CONTROL AND THE REDUCTION OF THE DEATH RATE AFTER OPERATIONS

BY ELLSWORTH HUNTINGTON, PH.D., RESEARCH ASSOCIATE IN GEOGRAPHY, YALE UNIVERSITY, NEW HAVEN, CONN.

Part I.—Humidity

AN IMPROVEMENT of 20 per cent in the results of operations would be an achievement for which the world might willingly pay millions of dollars. Yet such an achievement seems to lie easily within our grasp: it could apparently be brought about simply by giving the air of hospitals and sick rooms the proper temperature, humidity, and variability.

Although such a statement sounds highly optimistic, it seems justified by abundant evidence, part of which has already been published in "World Power and Evolution" and in an article¹ in the first number of MODERN MEDICINE, and part of which will here be set forth. To sum up the published evidence, an analysis of 60,000,000 deaths in many countries indicates that the death rate not only depends upon climate and weather, as is well known, but is far more sensitive to slight atmospheric variations than is generally supposed. The condition of the air is the fundamental cause not only of the difference between tropical and other countries, but of large fluctuations in the death rate from year to year, and of a multitude of smaller fluctuations in health from day to day.

The Optimum for Health

The study of these millions of deaths teaches three main lessons. First, the health of most parts of the world is best when the average temperature for day and night together approaches closely to 64° F., which is the optimum for the white race. Second, and more important because less expected, at all temperatures up to the optimum, dry air does far more damage than moist; while, even at higher temperatures, extreme dryness is worse than a moderate degree, although

All kinds of ailments show a surprisingly close correlation with temperature, humidity, and variability.

Different types of disease, however, respond differently. For surgical operations the best condition, as indicated by the records of two large Boston hospitals, is high humidity, 80 per cent or more, directly after operations, and moderate humidity, about 60 per cent at a temperature of 64°, a few days later.

Such conditions can easily be produced artificially. This would probably cause an improvement of not less than 20 per cent in the results of operations.

not as bad as extreme moisture. At a mean outdoor temperature of 64° the optimum relative humidity is about 80 per cent, which means dew at night and a humidity of perhaps 60 per cent at midday in clear weather. Equally unexpected, and equally opposed to the common belief, is the third lesson, that variability in the air is just as important as in diet or occupation. A climate or room in which the atmospher-

ic conditions vary frequently but not unduly on either side of the optimum is decidedly more healthful than one that remains uniformly near the optimum.

Thus far we have been speaking of health in general, but different diseases react differently. For example, in "The Interpretation of the Death Rate by Climographs"¹ it is shown that epidemics, taken as a whole, are checked by dry heat, although this may entail increased mortality from other causes. Similarly Greenberg² has found that mortality from pneumonia diminishes when either the temperature or humidity increases, although his figures are not conclusive for high temperatures. Thus, although all types of disease may be ameliorated under the influence of the general optimum herein defined, each apparently has its own peculiar relation to certain aspects of climate. The same is probably true of different ages, of the two sexes, and of people of different occupations, physiques, and temperaments.

An Optimum for Surgical Cases

In order to remove all doubt in this important matter I have begun an investigation of different ailments and different types of people with a view to determining the best conditions in each case. The present article deals with operations of all sorts except traumatic, these being omitted because the weather conditions which cause accidents are presumably quite different from those

1. Huntington, Ellsworth: The Interpretation of the Death Rate by Climographs, *Mod. Med.*, 1919, I, 13.

2. Greenberg, David: Relation of Meteorological Conditions to the Prevalence of Pneumonia, *Jour. Am. Med. Assn.*, 1919, lxiii, 252.

which govern the speed of recovery among surgical cases in hospital. The operations have not been subdivided because of the difficulty of obtaining a sufficient body of data without undue clerical work. The problem is to determine whether the condition of the air at the time of operations and immediately thereafter has anything to do with the success of the operations. The answer is emphatically positive. Deaths after operations show not only the familiar seasonal variation due largely to temperature, but also an equally strong relationship to humidity and to variability. The present article considers humidity, while variability will be considered later.

Method of Investigation

The method of investigation employed in this article is briefly as follows: At the Boston City Hospital (1914-1918) and the Massachusetts General Hospital in the same city (1906-1915) tables were prepared showing the dates of all non-traumatic operations which were followed by death before discharge from the hospital. These were divided into groups as appears below. Operations not followed by death were all put in a single group because any attempt to estimate their success brings in the fallible factor of human judgment, whereas death is an absolute criterion, universally recognized. This group is used only as a standard from which to measure the departure of the other groups. The cases followed by death were then compared with the conditions of the outside air as recorded by the Weather Bureau. Comparison was first made with the conditions on the morning of the operation, and a distinct relation became clear. When the weather on the succeeding morning was used, however, the relationship became much clearer. This is natural, for the critical time is immediately after the operation. Accordingly, unless otherwise noted, all

statements as to the weather refer to 8 a.m. of the morning after the operation.

The Problem Stated

Among the questions to be answered immediately were: (1) does any particular kind of weather hasten death after operations? (2) how long does the weather of a single day continue its influence? Table I gives the answers. It shows how the weather at 8 a.m. on the morning after operations which resulted in death at the Boston City Hospital differed from the weather on similar mornings after operation which did not result in death.

For example, the first section of the table shows cases in which death occurred at once or on the first day after the operation. From January to March the average temperature was 0.62° higher, the relative humidity 6.1 per cent lower, and the amount of vapor per cubic foot in the air 0.095 grains less than when none of the operations resulted in death. For the year as a whole, as appears at the bottom of the table, the figures are inconclusive; although the temperature was relatively high and the humidity low, the amount of water vapor was more than the average because of the higher temperature.

In the next section where death followed the operations after 2 to 4 days, the evidence is more conclusive. The weather was cool and dry at practically all seasons, for only 4 of the 15 signs in this section are plus and the rest all minus. In the section where death followed after 5 to 10 days the tendency toward dryness and coolness is still more marked, for all the signs are minus.

When death is delayed more than 10 days, however, the effect of the weather immediately after the operations seems to disappear, for in this section no marked tendency is observable. Yet even after this long interval, days with low relative

TABLE I

AVERAGE WEATHER CONDITIONS AT 8 A. M. ON DAYS AFTER OPERATIONS FOLLOWED BY DEATH, AT BOSTON CITY HOSPITAL, JANUARY, 1914-SEPTEMBER, 1918

KEY
 A = Number of cases.
 B = Departure from average temperature at 8 A. M. on days after operations, none of which resulted fatally.
 C = Departure from average relative humidity ditto.
 D = Departure from grains of water per cubic foot ditto.

	Length of interval from operation to death.															
	6-1 days—Section I				2-4 days—Section II				5-10 days—Section III				Over 10 days—Section IV			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Jan. to Mar...	71	+0.62	-6.1	-.095	67	-1.55	-1.3	-.098	74	-0.31	-4.4	-.067	52	+2.36	+0.8	+.241
Apr. to June...	73	+2.49	+4.4	+.311	66	+0.92	+0.2	+.250	48	-0.24	-0.9	-.116	46	+0.85	-1.7	+.065
July to Sept...	59	+0.01	-0.5	-.002	47	-2.52	+2.2	-.067	34	-0.57	-2.1	-.236	35	-0.82	-0.7	-.201
Oct. to Dec...	32	+1.81	-3.2	+.033	40	-0.14	-3.9	-.248	30	-1.26	-3.9	-.214	30	-0.26	-1.9	-.073
Year	235	+1.24	-1.35	+.089	220	-0.82	-0.65	-.041	186	-0.60	-2.80	-.158	163	+0.53	-0.88	+.008
	(9 plus, 6 minus)				(4 plus, 11 minus)				(0 plus, 15 minus)				(7 plus, 8 minus)			

NOTE.—The averages in Table I give equal weight to each month. This is accomplished by reducing the figures in column A (for each month) to percentages of the total number of cases for the month. Thus March, with 105 deaths, has the same weight as November with 36, and the influence of the seasons is thereby eliminated.

humidity seem to produce a bad effect since most of column C is minus. Thus dry air immediately after an operation appears harmful, and the effect seems to last 10 days, more or less. It seems odd that the effect should be greater from the fifth to the tenth day than earlier, but during the first day or two the question of life or death presumably depends primarily upon the degree of shock, and only after the first struggle is over does the full influence of the air become clearly differentiated from the greater influence of the operation itself.

Air Conditions Influence Death Rate

We are now ready to find out just what effect on the death rate is produced by any given combination of temperature and humidity. It would be well to use only deaths occurring within 1 to 10 days after operations, but the records of the Massachusetts General Hospital, although ideal in most respects, enable the lapse of time from the operation to death to be determined only by the laborious process of looking up each case individually in the original record instead of merely in the index, while those of the Boston City Hospital are not easy to use prior to 1914. Hence, for the present we shall use all deaths after operations. This does not alter our results but merely makes them less striking than they would be otherwise.

Effect of Temperature

Table II shows the number of deaths per day following operations performed when the weather conditions next morning were as indicated at the

top and on the left. The lessons of the table as to temperature are summed up in the "Total" column on the right. The small number of deaths, 0.383 per day, at a temperature of 51°-60° shows that the relation of operations to temperature is essentially the same as that of health in general; for 51°-60° at 8 a.m. includes to an average of about 64° for night and day together. The low figure for very hot weather, 0.324, merely means that under such conditions surgeons do not operate if they can avoid it.

Humidity Modifies Effects of Temperature

Although temperature is presumably the most important climatic element, its effects are profoundly modified by humidity, as appears in the body of Table II. Notice how the figures for temperatures of "over 80°" and "71°-80°" are large on the left where low humidity is shown, fall to a minimum at about 60 per cent, and rise again on the right where the humidity is high. At temperature below 70° Table II discloses a favorable tendency at low humidities, but this appears not to be due to humidity, but to the fact that cold waves, which are usually stimulating when they first occur, are regularly accompanied by dry weather. We shall return to this later. In spite of a few pronounced cold waves, however, dry weather at temperatures below 70°, or more probably below 64°, is as a rule harmful. This is clearly apparent in Table III, which is a condensed summary of Table II. Notice that at temperatures below 70° the decrease from left to right, that is from low humidity to high, is almost perfectly regular.

TABLE II

DEATHS PER DAY AFTER OPERATIONS WHICH WERE FOLLOWED BY SPECIFIC CONDITIONS OF WEATHER, BOSTON CITY HOSPITAL, JANUARY, 1914-SEPTEMBER, 1918, AND MASSACHUSETTS GENERAL HOSPITAL, 1906-1915								
Temperature at 8 a. m. day after operation	Relative Humidity at 8 a. m. on day after operation							Total
	40% or less	41-50%	51-60%	61-70%	71-80%	81-90%	91-100%	
Over 80°		1.000 (0-0)	0.182 (2-2)	0.083 (1-12)	0.750 (6-8)	0.000 (0-1)	..... (0-0)	0.324 (11-34)
71°-80°	0.937 (15-16)	0.489 (22-45)	0.244 (21-56)	0.280 (34-121)	0.347 (42-121)	0.500 (49-95)	0.775 (24-31)	0.399 (207-518)
61°-70°	0.333 (3-9)	0.329 (28-85)	0.470 (69-147)	0.417 (88-211)	0.365 (78-214)	0.410 (93-227)	0.346 (64-185)	0.393 (423-1057)
51°-60°	0.375 (6-16)	0.466 (28-60)	0.470 (47-100)	0.433 (77-178)	0.361 (70-194)	0.405 (74-183)	0.271 (55-203)	0.383 (357-934)
41°-50°	0.091 (1-11)	0.279 (12-43)	0.629 (71-113)	0.493 (80-162)	0.398 (84-211)	0.477 (75-157)	0.415 (73-176)	0.453 (396-873)
31°-40°	0.800 (12-15)	0.368 (18-49)	0.556 (83-149)	0.431 (102-237)	0.416 (79-190)	0.417 (56-131)	0.401 (55-212)	0.422 (435-956)
21°-30°	0.250 (3-12)	0.462 (30-65)	0.524 (54-103)	0.401 (55-137)	0.445 (50-112)	0.535 (38-71)	0.450 (22-49)	0.460 (252-549)
11°-20°	0.562 (9-16)	0.655 (26-38)	0.421 (32-76)	0.416 (32-77)	0.485 (17-35)	0.368 (7-19)	0.250 (4-16)	0.458 (127-277)
10° or less.....	0.545 (6-11)	0.133 (2-15)	0.447 (17-38)	0.740 (20-27)	0.650 (13-20)	0.400 (2-5)	0.000 (0-0)	0.500 (58-116)

NOTE.—To use the table, find the required temperature on the left and the relative humidity at the top. The decimal number at the point where the lines of temperature and humidity cross shows the number of deaths per day after operations performed when the weather at 8 a. m. of the next day was of the indicated kind, each hospital being reckoned as a separate unit and the two being simply added. The left hand number in parentheses indicates the number of deaths following operations performed when the given combination of temperature and humidity prevailed at 8 a. m. next day, while the right hand number shows the total number of such days.

The Norm Under Favorable Conditions

The last two columns of Table II are especially interesting. Column D shows the deaths per day under the most favorable circumstances. Except above 70°, where the figures for a humidity of 51-60 per cent (0.237) has been added in paren-

TABLE III

Temperature at 8 A. M. day after operation	SUMMARY OF DEATHS PER DAY IN RELATION TO WEATHER				
	Humidity at 8 A. M. on day after operation			Advantage of Column D over average for given tempera- ture	(40.0%)
	Under 60%	71-80%	81-100%		
Over 70 ..	0.413	0.316	0.561	0.775 (0.237)	(40.0%)
61-70	0.415	0.391	0.381	0.346	12.0%
51-60	0.450	0.395	0.334	0.271	29.2%
41-50	0.503	0.440	0.444	0.415	8.4%
31-40	0.531	0.424	0.407	0.401	9.3%
30 or less.	0.491	0.458	0.456	0.400	13.6%
Weighted average				16.8%	

theses, the most favorable conditions are clearly the moistest. The next column, E, shows the percentage by which column D, using 0.237 instead of 0.775, is less than the corresponding average for all days of a given temperature, as given in the right hand column of Table II, or else as obtained from that table by a slight calculation. In other words, the percentages in column E indicate the amount by which the death rate would have been reduced if the air at all times had been as good as under the most favorable conditions.

It is noteworthy that favorable conditions of humidity at temperatures above 70° are even more important than at lower temperatures. A little of the excellence of column D may arise from a drop in temperature due to rainy spells in the warmer months, but humidity is by far the most important element. If the outdoor air had contained its optimum complement of moisture, and if the indoor air had therefore been correspond-

ingly modified, the deaths would apparently have been diminished by 16.8 per cent. Artificial humidification would apparently produce equally desirable results.

True Importance of Humidification

In estimating the importance of humidification it must be remembered that various factors tend to make our results less striking than they really are. In the first place, we have been using all deaths after operations, including those occurring before the hour of our weather records and those so long after the operations that the effect of the initial conditions may have wholly disappeared. In order to see how far we have thus minimized our results, let us examine the deaths occurring from 1 to 10 days after operations at the Boston City Hospital. These are summarized in Table IV, which combines certain features of Tables II and III. The percentages in column F rise higher than in the corresponding part of Table III, column E, and their average, 23.2 per cent, rather than the former figure, 16.8 per cent, seems to be a fair measure of the influence of humidity immediately after operations.

A second reason why our results appear less striking than they really are is that, even when the air outdoors is saturated, the humidity within doors may still be much too low. If saturated air from outside is taken into the house and heated to 64°, its relative humidity becomes approximately as in Table V.

Only the last of the percentages in Table II is as high as is desirable after operations; hence even in the best winter weather artificial humidification is needed on a considerable scale. Conversely, in warm weather the air should be dried and cooled before being admitted to operating rooms and wards. There is as much reason to cool the summer air as to warm that of winter.

TABLE IV

Temperature	SUMMARY OF DEATHS PER DAY AT BOSTON CITY HOSPITAL COMPARED WITH WEATHER AT 8 A. M. ON DAY AFTER OPERATIONS, AND CONSIDERING ONLY THE DEATHS OCCURRING ONE TO TEN DAYS AFTER THE OPERATION					
	Relative Humidity					
	60% or less	61-80%	81-100%	91-100%	Total	Advantage of D over E
	A	B	C	D	E	F
Over 70°	0.230 (8-35)	0.213 (19-89)	0.383 (18-47)	0.200 (7-35)	0.263 (45-171)	31.5%
61°-70°	0.320 (24-75)	0.292 (36-128)	0.264 (37-140)	0.254 (16-63)	0.283 (97-343)	10.2%
51°-61°	0.268 (15-56)	0.309 (30-123)	0.215 (24-112)	0.117 (7-60)	0.264 (77-291)	56.6%
41°-50°	0.477 (24-50)	0.270 (33-122)	0.352 (34-99)	0.347 (17-49)	0.336 (91-271)	-3.3%
31°-40°	0.463 (24-53)	0.355 (44-124)	0.317 (39-123)	0.312 (24-77)	0.357 (107-300)	12.0%
30° or less.....	0.387 (48-124)	0.316 (47-149)	0.327 (20-61)	0.228 (5-22)	0.355 (115-324)	35.8%
			Weighted average			23.2%

With such treatment of the air we may reasonably hope that the death rate may be reduced not only to the level which now pertains to air with the best natural conditions of humidity, that is, by 20 per cent or more, but to a still lower level.

Greatest Humidity Immediately After Operations

A third factor which reduces the striking quality of our results is that thus far we have considered the humidity of only a single day. That first day, to be sure, is the most critical, for the patient is under the full shock of the operation; yet other days are also important, especially the day of death in cases where the patient lives beyond the first day. Accordingly, Table VI has been prepared to show the number of deaths per day when various weather conditions prevailed on the day of death. This table is based on 571 operations which were followed by death on the second day or later. It agrees with the others as to both high and low temperatures. At high temperatures extreme dryness, 0.372, is not as good as moderate dryness, 0.276; but extreme humidity is much worse, 0.462. At temperatures below 50° the death rate decreases quite steadily with increasing humidity.

At intermediate temperatures, however, the most favorable conditions appear to shift gradually with temperature so that at all times they correspond as nearly as possible to an indoor humidity of not far from 60 per cent after the air has been heated and has received the usual increments of moisture from furnaces, from peoples' breath, and from other sources of evaporation. This suggests that, whereas immediately after an operation the relative humidity should be as high as practicable, that is 80 per cent or more, it should gradually be diminished so that after a few days it averages about 60 per cent when the temperature is 64°. Even that, however, is about twice as great as the humidity of the ordinary house or hospital in winter.

From the foregoing facts it appears that if the right conditions prevailed at the time of operations, and if there were also a gradual change to somewhat dried but still compara-

tively moist conditions after the operation, each process would entail a theoretical decrease of nearly 20 per cent in the death rate. This, be it remembered, takes account of only two days, the one directly after the operation and the one when the death occurs. If the days between these two

TABLE V

RELATIVE HUMIDITY OF SATURATED OUTDOOR AIR AFTER BEING TAKEN INTO HOUSE AND HEATED TO 64°

Outside Temperature	Approximate relative humidity indoors at 64°
25°	24%
35°	36%
45°	52%
55°	75%

were considered, the effect would be still greater. Hence the hope that proper attention to humidity may cause a saving of 20 per cent in the total death rate after operations seems conservative.

How to Attain Humification

The actual process of humification is relatively simple, although most of the humifiers now on the market are inadequate. At least two processes, however, are comparatively effective. One is where warm air is blown through a shower of spray; the other, which is much cheaper for buildings where the heating plant is already installed, consists in suspending cloths like wicks with their lower ends in dishes of water and with their upper parts spread out back of radiators or in other suitable positions. This method is explained in detail in an appendix in "World Power and Evolution." A practicable modification, where hot air is used, consists of a series of non-inflammable wicks placed in the hot air chamber with their lower ends in pans of water and their

TABLE VI

DEATHS PER DAY AT AN INTERVAL OF TWO DAYS OR MORE AFTER OPERATIONS AT THE BOSTON CITY HOSPITAL, COMPARED WITH WEATHER CONDITIONS ON THE MORNING OF DEATH

Temperature at 8 A. M.	Relative Humidity at 8 A. M.							Advantage of underlined conditions over average H
	40% or less A	41-50% B	51-60% C	61-70% D	71-80% E	81-90% F	91-100% G	
Over 70°	0.372 (0-1)	0.276 (2-11)	0.339 (11-23)	0.379 (6-35)	0.461 (21-54)	0.462 (20-35)	0.462 (6-13)	28.5%
61°-70°	0.200 (0-3)	0.238 (7-21)	0.246 (8-51)	0.312 (15-54)	0.308 (21-74)	0.270 (28-77)	0.270 (17-63)	12.1%
51°-60°	0.25 (1-4)	0.375 (5-22)	0.324 (15-30)	0.314 (16-59)	0.291 (17-64)	0.331 (18-52)	0.400 (24-60)	11.8%
41°-50°	0.320 (0-4)	0.318 (4-12)	0.262 (12-34)	0.243 (13-45)	0.243 (16-77)	0.243 (11-50)	0.286 (14-49)	5.8%
31°-40°	0.415 (0-3)	0.430 (5-10)	0.414 (17-40)	0.429 (30-71)	0.385 (21-53)	0.385 (22-46)	0.325 (25-77)	21.8%
30° or less.....	0.546 (6-11)	0.379 (14-31)	0.420 (27-82)	0.369 (46-91)	0.387 (16-55)	0.277 (12-42)	0.227 (5-22)	39.7%
Weighted average								9.3%

NOTE.—Deaths occurring on day of operation and on the next day are omitted because already considered. In this table, unlike the others, the figures for deaths per day, but not those in parenthesis for number of deaths and number of days have been smoothed by averaging groups of three in each horizontal line. This is because the number of cases is less than elsewhere, and smoothing is needed to obliterate accidental variations. Such variations are probably the reason why the line for 61-70° continues to diminish to the left of column D.

upper ends suspended from sprinkling pipes with rows of holes opening on both sides of the wicks. An automatic valve in the pans opens when the water becomes too shallow, and thus allows the sprinklers to play on the wicks until enough water trickles down to fill the pans again.

Whatever method of humidification is used, it must be remembered that if the air is to be comfortable and healthful, it must be comparatively cool. Air with a temperature of 65° and a relative humidity of 70 per cent, as any one can see on many a day in the spring and fall, feels perfectly comfortable to people who want a tempera-

ture of at least 70° when the air is dry in winter. It must also be remembered that variability as well as humidity is needed.

The evidence that health could be much improved by proper humidity seems overwhelming. So, too, does the evidence that the human organism is amazingly sensitive to slight changes in the atmosphere. Nevertheless, our knowledge of the whole subject is still very imperfect. Hence everyone who tries experiments along the lines here indicated is urged to publish the results, or at least to communicate with the author or with the editors of this magazine.

MEDICAL SUPERVISION OF STUDENTS AT WISCONSIN

BY C. R. BARDEEN, M.D., DEAN OF THE MEDICAL SCHOOL, MADISON, WISCONSIN

MEDICAL supervision of health in an institution or a community may be subdivided into three overlapping parts: (1) prevention of the spread of infectious diseases, (2) promotion of good hygienic conditions, and (3) personal care.

The prevention of the spread of infectious diseases in regions such as that in which the University of Wisconsin is situated is largely a matter of the prevention of personal contact infections. Insects play a minor rôle. The water and food supplies play a somewhat greater rôle but one much less than that of personal contact. The chief problem in prevention is that of prompt discovery and prompt isolation of infected individuals. In a university community this is the more important because of the opportunities offered for contact infections by the crowded conditions of class rooms, boarding houses, and, frequently, of rooming houses.

The Control of Infectious Diseases

For the sake of early discovery of cases of infectious disease, the students and those interested in their welfare are encouraged to report all cases of illness, however trivial they may seem, promptly at the university clinic. The regular hours for students to call at the university clinic are from 1:30 to 4:30 each afternoon. Ap-

HEALTH A COMMUNITY ISSUE

Medical supervision of the health of a student body involves more than disease treatment, or even disease prevention.

It embraces the study and care of the health of the community as a whole, and includes in its reach the hygiene of the environment.

It must meet the health needs of each individual, both immediate and as they relate to the future.

The centralized and perfectly functioning health work at Wisconsin could well be expanded to take care of a municipality, or a state.

day or night and are visited by members of the staff. Students are encouraged to feel that it is their duty to report promptly when ill, not only for their individual welfare but also for that of their fellow students. In general the response has been gratifying. Not infrequently cases of mumps have been isolated before the parotid gland has begun to swell, the diagnosis being made in the appearance of the salivary duct.

The prompt discovery of an infectious disease is of little value, so far as the community at large is concerned, unless it is followed by prompt isolation. Proper isolation is seldom practical in the houses in which most of the students room. Furthermore, if a student is isolated for the sake of the community it is only fair that he should be furnished medical attention during this period, and medical attendance, when cases are widely scattered, is time-consuming. We have therefore maintained an infirmary at the university to

pointments may be made in advance. A staff of several physicians is in attendance. At certain seasons from 150 to 200 students out of a student population of 5,000 may visit the clinic in a single afternoon. The average number is about one hundred. In case of emergency students may call at the clinic at other hours than those specified, either morning or evening. Students confined to bed by illness can telephone the clinic

which students can be sent. Hitherto we have not had one adequate for our needs. During the influenza epidemic the University Club and several private houses were utilized as infirmaries.

We have recently completed a new student infirmary with a sixty-bed capacity. This cost, equipped, about \$110,000. Of this amount \$50,000 was contributed by private individuals, the

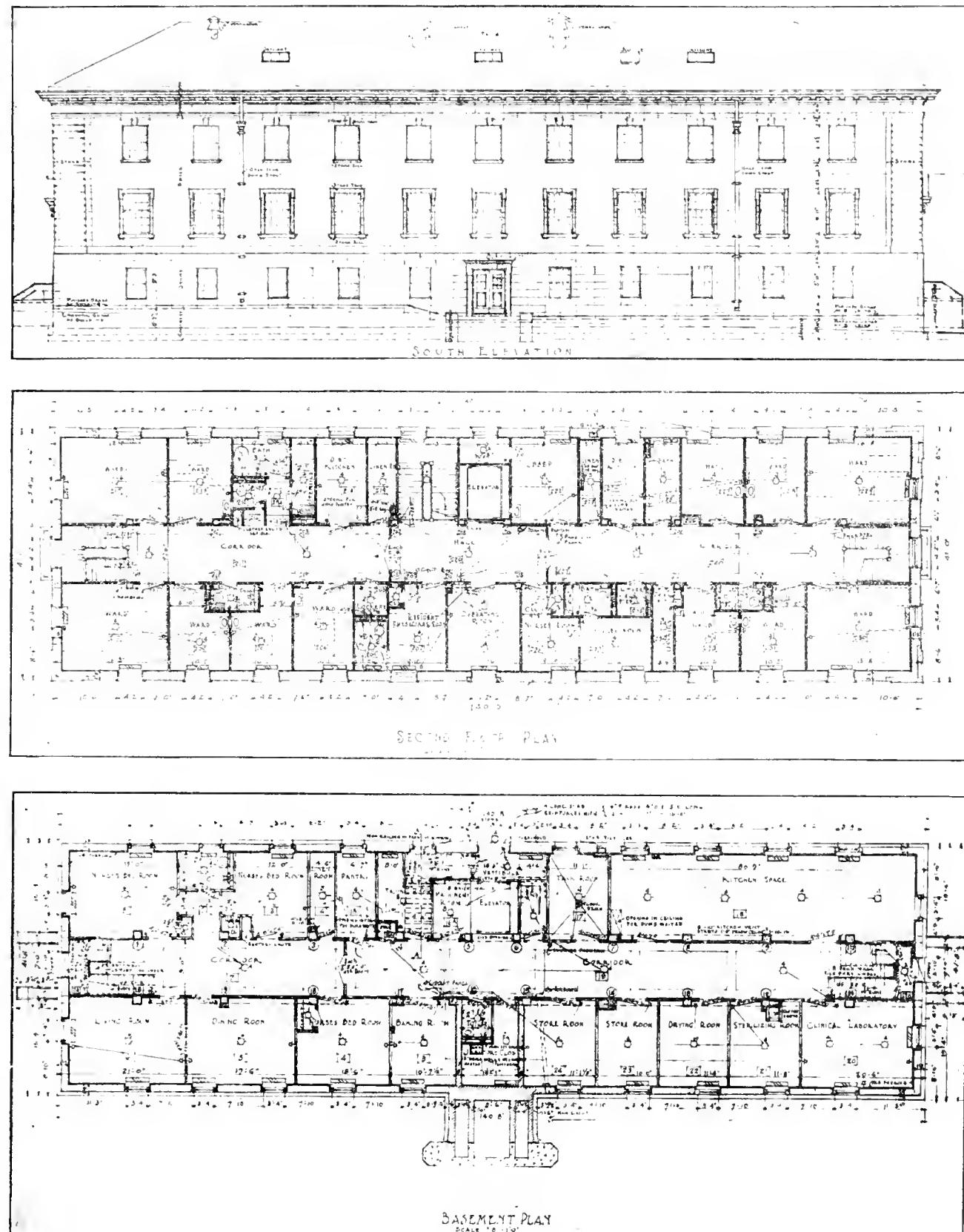


Fig. 1. Elevation, second floor and basement plans of University Infirmary.

rest by the state. Figure I shows an elevation, basement and second floor plans of this building. The building is arranged for the isolation of various groups of cases of each sex. Provision is made for the use of other buildings in case of epidemics of unusual proportions. Each student is charged an infirmary fee of \$3 per semester. This entitles him to care at the infirmary during periods of acute illness without extra charge. Hitherto a *per diem* charge of from \$1 to \$1.50 per day has been made, but it has seemed best to make community charge for the care of patients who in the main are cared for at the infirmary as much for the welfare of the university as a whole as for their own.

The Promotion of Good Hygienic Conditions

Under this heading come many factors. It is obviously the duty of the university authorities to provide good conditions of lighting, heat, ventilation, and plumbing in the class rooms and laboratories, and to schedule work in such a way as to promote physical and mental efficiency. The sanitary conditions of the dormitories and commons likewise should be of the highest standard. For the promotion of these ends the medical supervisor and his staff as well as other members of the medical faculty act in an advisory capacity. The supervision of sanitation in rooming and boarding houses not under direct university control is more difficult. Much, however, can be done indirectly through such control as may be exercised in guiding students in the choice of rooms and board, and directly by appeal to the managers of such places for cooperation. Our experience has been that more can be accomplished in medical supervision by informally inviting cooperation than by formal inspection and a show of force which in the nature of things must be in part a bluff.

Facilities for Physical Exercise

In another field the university endeavors to promote hygiene by offering facilities for physical exercise. These facilities are under the supervision of the department of physical training and include gymnasiums for men and women, playgrounds, and equipment for lake sports. At Wisconsin, however, we are coming to look upon the department of physical education as primarily an educational department rather than a hygienic institute. While the facilities of the department offer opportunities for healthful exercise and provision is made for corrective exercises for those who may need them, the primary function of the department is training in skill in muscular activity and in training teachers for this work. The

well developed individual should have not merely a healthy mind but a trained intellect, not merely a healthy body, but one that can be used gracefully and efficiently.

In so far as the department of physical education has to do directly with the personal hygiene of students it acts under the advice of the medical supervisor. The medical department has charge of the medical care of the athletic teams.

Personal Care

Under the term "personal care" as a part of the work of medical supervision we mean work done for individuals for their personal benefit. The average student, when he enters the university, has some physical defects, slight or marked, the result of heredity or environment. He comes from a home in which he has been surrounded by loving care, and where much more thought has been given by others than by himself to consideration of his health. At the university he is thrown more upon his own resources and has to develop new habits of personal hygiene. An important part of the work of the medical supervisor is to learn to know the students as individuals and to give such advice concerning personal and public hygiene as will help the student to make the most of himself as a student and to prepare himself to make the most of himself subsequently as a citizen.

Each student when he enters the university is required to undergo a medical examination, the results of which are recorded in condensed form on a 5x8 inch card, a reproduction of which is shown in Figure II. These examinations are made during the first ten days of the school year. Appointments for medical examination are made at the time of matriculation. On the basis of this medical examination the students are divided into four groups, A, B, C, and D, from the standpoint of scholastic work, and into four groups, a, b, c, and d, from the standpoint of physical activity. Students not in class "A" or "B" as a rule require special medical supervision in the selection of studies or hours of work. Students in class "a" are not restricted as to physical activities; those in classes "c" and "d" require special supervision over their physical activities.

Cards signifying the classification of the students are sent to the university officers in charge of the scholastic or physical training of the student. Students whose presence at the university would be clearly detrimental to their own welfare or that of their fellow students, cases of active tuberculosis, for instance, are excluded from the university. Students whose physical condition seems to demand it are required to report from

Name		Diagnosis												No.			
Date	Class	Dept.		Home Address													
	Age			University Address													
P. C.														Telephone			
P. M. H.		M. Chor	Mp. Men.	Wt. Paint	C p. Conv.	S p. Sp.	S f. Fract.	D. Rh	Rh. Distoc.	Ton. Ton.	Ty. Wounds	Pn. Hernia	Pl. Br.	Bri. Operations	Dig. Con.	Dat.	
S. H.		Tob. M. Ob.	Alc. Reg.	Te. Length	Apo. Flow	Reg. Plain	Si:Hrs Time	Bath	Gon. Pos.	H. B	Sy. W. P. C.						
F. H.		F. Tbc.	Rh	M. Ren.	Card	B	Neb.	Nerv.					Dig.				
Ph. Exam.		Height Skip.		Weight		Chest: Max.	Min.	Girth					Contour	{ muscle adip oss def			
Eyes:	R. L.	D.	muse		conj.		contour						refrac.				
L.:	L. L.	D.	muse		conj.		contour						refrac.				
Ears:	Ext.				Int.												
Nose:																	
Oral:	Teeth			Tongue		Ton.							Phary.				
Neck:	Thyroid: R. L.	L. L.	Isthmus		Puls.								Contour				
Nervous:	Kn. J. Stat.	B. J. Gant	W. J. Coord	A. J. 				Plant. Trem.									
Extremities:																	
Genitalia:																	
Deformities:	Spiral: Scap.	Lor.	Se.		Ky.			Misc.					Rot.				
				MAX													

Chest: Lungs:		Ant.	LEFT	Post.	Ant.	RIGHT	Post.
Contour							
Expansion							
Tact frem							
Adventitious							
Upper bord.							
Lower bord.							
Voc. frem							
Breathing: Inso...							
Exp.							
Adven.							
Heart: Apex		Impulse		Upper		1st	
Contour		Pulsation		Right		2nd	
Pulsation				Left			
Mur.	Time	Max		Trans.		Card. hep. ang.	
Circ sys.	Pulse: Rate		Size		Rhythm		Vessels
Blood Pressure	Recl. Syst.						
	Erect. Syst.		Diastr.				
	Exercise Syst.		Diastr.				
Abdomen:	Musculature	up. bord.	Contour low bord			edge.	
Liver							
Spleen							
Kidney, rt.							
lft.							
Stomach							
Gall bladder							
Intestines							
Pelvis							
Abnormalities							

Fig. 2. Front and back of Clinic History Card. When the student enters the university he is required to undergo a medical examination, the results of which are recorded in condensed form on the 5x8-inch card reproduced above.

time to time at the office of the medical adviser for medical examination and oversight. As examples of constitutional affections demanding medical oversight, we may mention diseases of the heart, goiter, or other causes leading to disturbances of the circulation as among the most important.

students in attendance seek advice one or more times during the year. The average number of days of illness in bed is slightly over one per student per college year, during years in which no special epidemic occurs.

While the percentage of the students in attendance who consulted the clinic each month in-

THE UNIVERSITY OF WISCONSIN--DEPARTMENT OF CLINICAL MEDICINE												NAME	AGE	CLASS	DEP'T	FILE NO.	GEN. NO.																					
DATE	Color	Sp. Gr.	React.	Alb.	Alls.	Gluc.	Acet.	Dacet.	Bile	Urob.	Indic.	Diazo.	Urea	Cyl.	Hyal.	Gran.	Waxy	Leuc.	Eryth.	Mucus	Eryth.	Leuc.	Epath.	Ca Ox.	Uric Ac.	Phosph.	Urates	Hb	Eryth.	Leuc.	Poly	Lymph.	L. M.	Nyel.	Trans.	Eosin	Baso.	DATE

Fig. 3. A laboratory card is kept for each student. It bears a number corresponding to that on his other clinical records.

After the medical examination of a matriculant is made he is free to call upon the medical adviser for medical advice at any time and is encouraged to do so. The department of clinical medicine gives medical treatment to students who desire it when in the opinion of the medical staff this treatment can be given with advantage to the student or to the university; but students requiring the services of surgeons or other specialists are referred to private physicians either in Madison, at the student's home, or elsewhere. No charge is made for medical advice, supervision or treatment furnished by the university, but the expenses of this work are in part met by incidental fees paid each semester. The university is under no contract to furnish medical care. Students are charged at cost for x-ray plates and other materials furnished at the office of the medical adviser. The number of calls at the office of the medical adviser run from 30,000 to 40,000 per year but the majority of these are for trivial complaints which enable the medical staff to put in the one stitch that saves nine. About 80 per cent of the

increased rapidly during the first few years after it was started, the percentage of students with acute nasopharyngeal infection, in whom complications developed, infection of the eyes, ears, and the like, decreased from about 50 per cent to less than 10 per cent and the average time lost from work from $8\frac{1}{2}$ to $2\frac{1}{2}$ days. The habit of prompt reporting of illness has decreased rather than increased morbid worry about one's condition. The use of patent medicines, frequent before the work was organized, has practically disappeared.

Each student is given a serial number at the time of the medical examination made when the student matriculates. An envelope is stamped with this number and in this envelope are placed the condensed record of this medical examination and records of all subsequent medical consultations, laboratory examinations, correspondence with the family physician or with specialists to whom the student may have been referred, correspondence with his relatives, and similar data. These envelopes are kept on file and each time a student visits the office the envelope is looked

up and sent to the physician whom the student consults. The physician adds a note concerning the consultation and the envelopes are filed away each evening. Cross reference index cards are kept on file arranged both alphabetically and by diseases (Figs. III and IV).

Statistical summaries are made each year of the matriculation medical examinations and each month and each year of the morbidity record. While these statistical studies have been made the basis of published studies of certain special conditions, they have not been published in complete form because we have aimed at the publication of conclusions based on a large amount of data rather than of mere dry statistics.

The work thus briefly outlined started in a modest way. The immediate incentive to the establishment of medical supervision of student health at Wisconsin was an epidemic of typhoid fever which occurred in the fall of 1909, and during which some forty students were taken ill and several died. The spread of the disease was ascribed to lack of centralized supervision. The students afflicted called in different physicians and it was not realized that an epidemic had started until many were ill. The disease

<small>THE UNIVERSITY OF WISCONSIN DEPARTMENT OF CLINICAL MEDICINE DIAGNOSIS CARD NO.</small>		
Disease		
Name		
Class	Agriculture	
Date		
<small>THE UNIVERSITY OF WISCONSIN DEPARTMENT OF CLINICAL MEDICINE</small>		
M	Date	College Class
has been sent to the		University Infirmary Madison Gen. Hospital St. Mary's Hospital Contagious Hospital
and may be absent		days or more.
Medical Adviser		
THE UNIVERSITY OF WISCONSIN DEPARTMENT OF CLINICAL MEDICINE	No.	
	Name	College
	Class Date	Academic
Medical Classification:		
Physical		

Fig. 4. From top to bottom: (a) Diagnosis card; (b) Excused absence card; (c) Name card.

was spread from a student who waited on table at a boarding house and was a carrier. The faculty of the medical school was asked to organize a system of medical supervision.

Wisconsin offers merely the first two years of the medical course. A new department of clinical medicine was established in the medical school for the purpose of having direct charge of the medical supervision of student health, for research, and for teaching such clinical work as properly comes within the first two years of the medical course. The professor of clinical medicine was made medical adviser of the students.

The department was established with the appointment of a full-time physician as professor of clinical medicine and medical adviser who began work in February, 1910, with a woman laboratory assistant. It was planned at first that he should work in cooperation with the private practitioners in Madison in keeping record of student illness and seeing that prompt attention was given. This plan did not prove practicable owing to the failure to obtain the required cooperation. It therefore became necessary to enlarge the staff and to give treatment not only for minor conditions but also for most medical cases. In no other

way could a satisfactory record be obtained of the morbidity prevailing at the university at any given time.

From the teaching standpoint, also, the staff had to be enlarged because of the increased amount of clinical work which many of the better

for office space. This house (Figs. V and VI), now known as the "clinical building," is provided with waiting rooms for men and women, offices, laboratories, and x-ray rooms for the diagnosis and treatment of office cases. Each physician has two connecting offices so that while a patient is



Fig. 6. The University Clinical Building.

schools began to put in the second year of the medical course. Furthermore, the public demand for opportunity for medical consultation at the university led to the establishment of regular hours for this work, those able to pay being charged the usual consultation fees and the fees being turned into the state treasury. The staff has accordingly grown rapidly. For the coming year provision has been made for two professors, three assistant professors, two instructors, five assistant physicians, three laboratory assistants, two interns, a hospital superintendent, four or five supervising nurses, pupil nurses, several stenographers and clerks, a dietitian, cooks, maids, janitors, and other help. The budget has grown from less than \$10,000 to more than \$80,000. A considerable part of the budget is met by revolving funds such as clinics, infirmary, and hospital fees. It covers the cost of teaching and research as well as that of medical supervision and infirmary care.

Physical Equipment of Department

The offices of the department were at first in a small house which soon proved to be quite inadequate. In 1912 possession was taken of a larger house to which a considerable addition was made

getting ready in one room the physician can examine another in the other room. In this way a large number of patients may be examined in a short time. Patients needing further study are given special appointments.

For hospital care use has been made of the facilities of the two local general hospitals, of the city isolation hospital, and of houses owned or rented by the university. The completion of the new infirmary will enable us to take care of medical cases except in time of unusual epidemics when use will also be made of certain houses owned by the university. Cases requiring major surgery will as a rule be sent to one of the local general hospitals although provision is made for emergency surgery at the university infirmary.

Personal and Public Hygiene

The desire to form habits which will promote the greatest physical and mental efficiency is leading an increasing number of students to seek advice concerning personal and public hygiene. The majority of students are idealists who desire to develop the best that is in them. A quiet talk with a physician familiar with the problems of health from the standpoint of the student is of far greater value than attendance on a course of

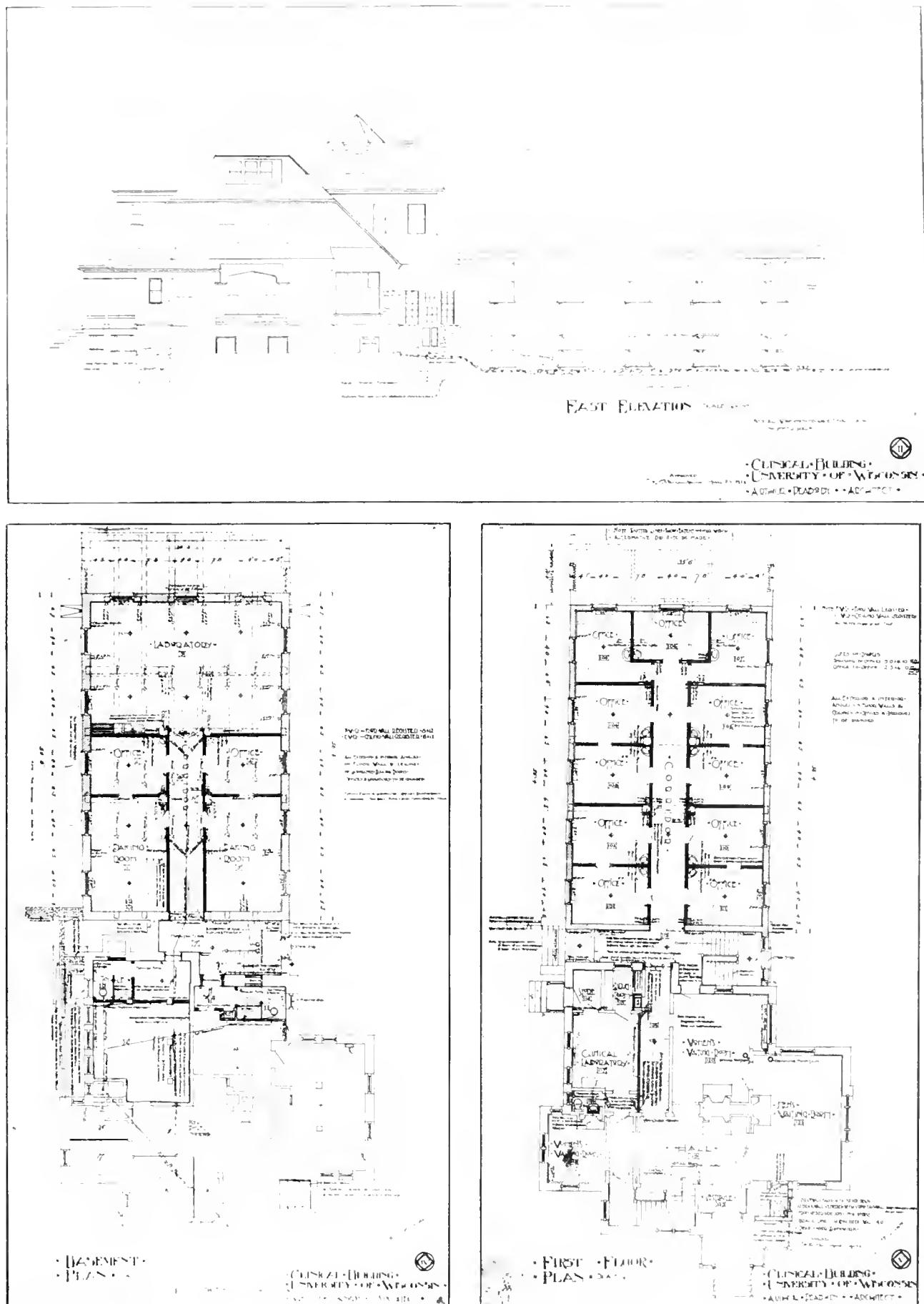


Fig. 5. Elevation and floor plans, Clinical Building.

lectures on hygiene. For several years the faculty of the medical school has conducted an elective course of lectures on personal and public hygiene in which various topics have been treated

by specialists, members of the medical faculty, and others. These lectures have proved popular, judging from the large number of students who have attended them; but we have felt that they

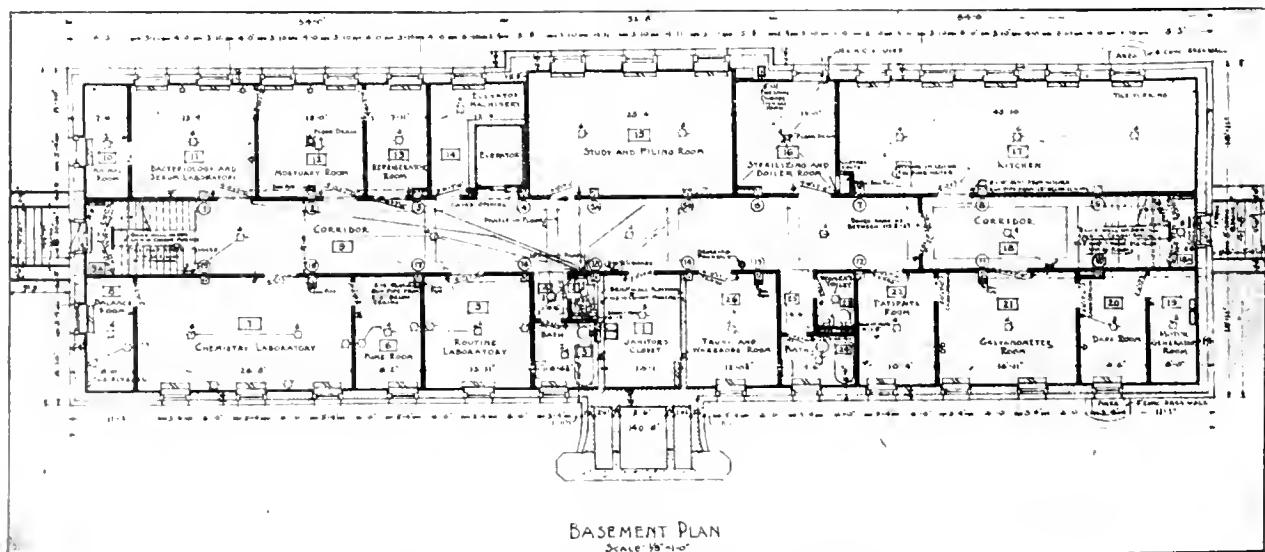
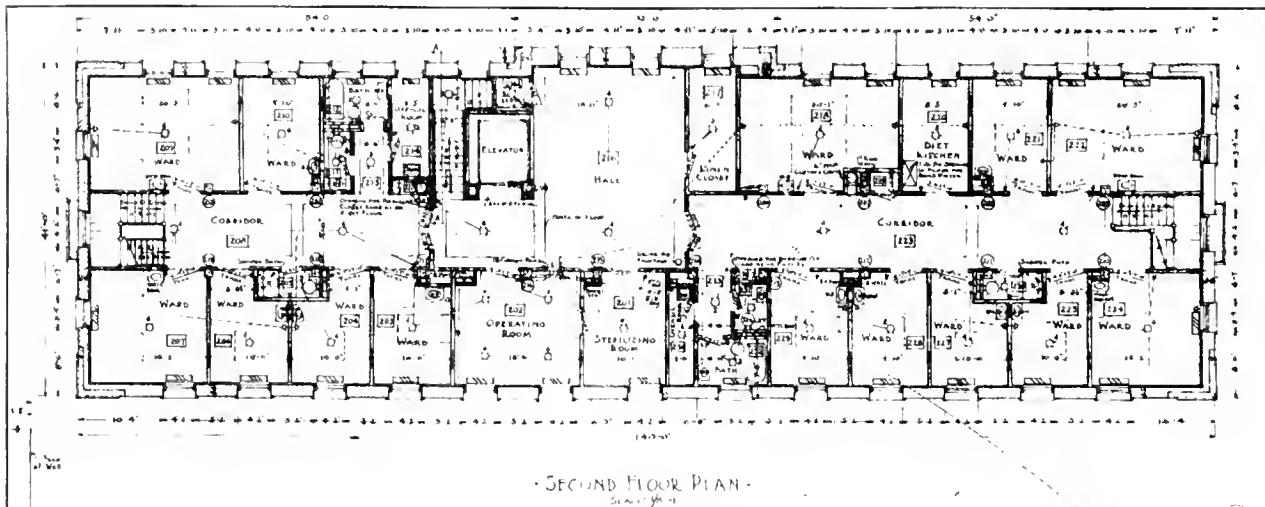
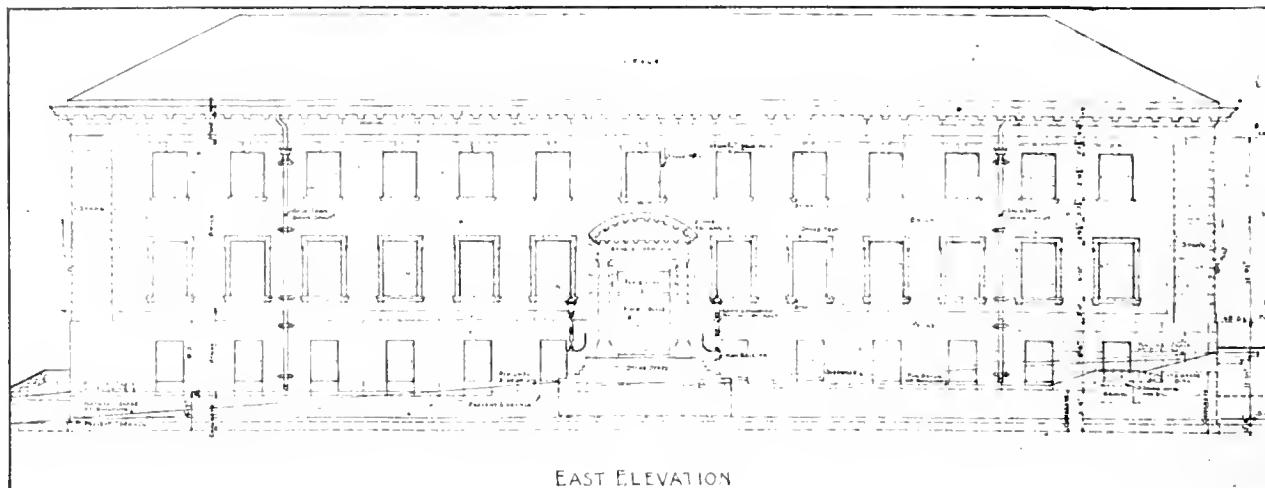


Fig. 7. Elevation, basement and second floor plans Bradley Memorial Hospital.

have been far less effective in achieving results than the personal talks referred to. This is especially true of questions of sex hygiene.

We have looked upon the work of medical supervision of the students as offering unusual facilities for the study of disease conditions at an earlier stage than they ordinarily come under the observation of the physician. It also offers a good opportunity to study morbidity in a large group of young individuals in relation to their present environment and to conditions preceding their entrance at the university. The outside consultation practice makes it possible to study morbidity in individuals below or beyond college age and to compare this morbidity with that observed in college students. Thus a broad background is offered for specializing in the conditions of health and disease presented in the student community. This scientific study of disease will be greatly facilitated by the Mary Cornelia Bradley Memorial Hospital which has recently been completed from private gifts at a cost of over \$100,000. This is a forty-bed hospital especially designed for intensive study of selected groups of cases. Figure VII shows an elevation, basement and second floor plans of this hospital. On the first floor are x-ray and physiological laboratories, and a children's ward.

In conclusion, we may summarize the aims of medical supervision at Wisconsin as embracing the study and care of the health of the community as a whole, including the hygiene of the environment, and the study and care of the health of students as individuals both immediate and in relation to their future.

PHYSICIANS FORM NEW ORGANIZATION TO COMBAT HEALTH INSURANCE

The Physicians Protective Association has been formed in Buffalo independently of the district branch of the State Association to combat health insurance in the state legislature. Dr. Earl Lathrop is the secretary-treasurer and chief organizer of the movement. A call has been issued to over one thousand physicians in western New York to join the Association, with the plea that health insurance constitutes a menace to medical men. As a result of the plan to have a symposium on health insurance at the district meeting of the state Association, several physicians who were members of the Protective Association withdrew from the program. The New York State Association has a special committee making a study of the subject of health insurance.

TRAINING FOR HOSPITAL SOCIAL SERVICE

The Boston School of Social Work offers during the coming season special courses for the training of workers in social service in hospitals and dispensaries.

Superintendents and doctors in modern hospitals and dispensaries recommend a social service department as essential to a well-equipped medical institution. The demand for women with special qualifications and training

Liberal Party Leader



Photo from Underwood & Underwood, N. Y.
HON. W. L. MACKENZIE KING

THE Honorable W. L. Mackenzie King has been chosen in the Convention of the Liberal Party in Canada as the party leader, taking the place of the late Honorable Wilfred Laurier. Mr. King is well known to the students and workers in industrial hygiene in the United States. He has made a public reputation largely in the field of labor improvement, and has been the author of numerous reports and treatises on industrial hygiene. The people of the United States are interested in Mr. King's work also because much of his time has been spent for the past few years in this country investigating the subject of industrial relations for the Rockefeller Foundation. The results of these investigations have recently been published in a book of outstanding merit—"Industry and Humanity." Mr. King is one of the younger leaders of Canada, being only 45 years old. He was a trusted friend and dependent of the former leader, Sir Wilfred Laurier.

to deal with the problems of family life and community relations, as they occur among people who are physically or mentally ill, is increasing greatly.

A one-year course is open in general social work, with special attention to medical-social service. There is an advanced class entirely devoted to medical social service for those who have had the necessary preliminary experience or training.

The Boston School of Social Work is affiliated with Simmons College, and those completing courses at the school receive certificates, or under certain conditions a degree may be obtained. For circulars giving the details of the courses, the tuition fees, etc., write to Director, School of Social Work, 18 Somerset street, Boston.

THE UNIVERSITY OF IOWA AS A STATE MEDICAL CENTER

BY HAROLD CHAMBERLIN, UNIVERSITY OF IOWA, IOWA CITY, IOWA*

TO SERVE the state as a medical and health center the University of Iowa extends medical and surgical treatment without cost to all Iowa's indigent people. The university belongs to the citizens of Iowa; rightly, they should benefit from it.

Most of the university's work which reaches beyond the student body is done by the college of medicine. Crippled children are made to walk and play; little folk who are sick are nursed back to health and happiness; blinded youngsters are made to see, and the deaf to hear. Adults, likewise, may receive whatever treatment they need. The mentally deficient will soon be examined and cared for in a special department which will be housed in a new hospital building. The university hospital does the only government reconstructive work for wounded soldiers in the state.

A Service for the Whole People

But the work of the university for the people of Iowa does not come to an end in the hospital. Problems of the normal child are studied in the Iowa Child Welfare Research Station. In the infirmary of the college of dentistry teeth may be treated with charge made only for the materials used. The State Bacteriological Station, which is located at the university, tests milk and water that the people may drink nothing impure; Wasserman tests in the interests of public health are done in the laboratory; examinations are made for rabies, and the Pasteur treatment given; the state epidemiologist takes charge of epidemics which may occur, and works to prevent outbreaks of disease.

Greatest benefits result from the Perkins law and the Haskell-Klaus law, both of which provide that indigent patients may be accepted at the hospital and cared for at the expense of the state. Four years ago the state of Iowa made its first venture in this field when the legislature passed

A PRACTICAL HEALTH PLAN

A wide extension of restorative medicine is achieved in Iowa, corrective facilities having been made available to indigent cripples throughout the state.

The University hospital has become a health center for the entire state, and a teaching center for the profession.

The work of restoration has not obscured the importance of research in health conservation.

Diagnosis, psychopathy, nutrition, medical extension service, and the coordination of all agencies have as their objective the best service to the greatest number.

under its provisions. On July 1 of this year the Haskell-Klaus law, extending free treatment to indigent adults, came into effect.

Patients are received at the general hospital of the University of Iowa, which is the largest hospital in the state. It has a capacity of 585 beds.

During the year ending June 30, 1919, 5,343 cases were treated. The university hospital is the second largest teaching hospital in the United States, being exceeded only by Johns Hopkins. It is operated in connection with and as a part of the college of medicine, and in the hospital the students in medicine and in nursing receive their training.

The college of medicine has gathered together a most capable faculty. Dean L. W. Dean is the chief of the head specialty department of the hospital. C. J. Rowan is the hospital surgeon. Some of the more important departments are internal medicine, in charge of C. P. Howard; gynecology and obstetrics, directed by W. R. Whiteis; skin diseases, J. B. Kessler; genito-urinary diseases, N. G. Aleck; nervous diseases, Clarence Van Epps; children's diseases, A. H. Byfield; orthopedic surgery, Arthur Steindler.

The hospital accepts three classes of patients. Private cases pay all expenses incident to treatment. Clinical patients are received at a nominal charge covering the actual expense of hospital care, but making no allowance for professional

the Perkins bill, which provides treatment free of expense to the patient for any child who is "under sixteen years of age and is afflicted with some deformity or suffering from some malady that can probably be remedied," and whose parents are unable to provide means for the surgical and medical treatment and hospital care of the child. Since the law became effective more than 3,000 cases have passed through the hospital

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*Published with the approval of L. W. Dean, M.D., dean of the College of Medicine, University of Iowa, Iowa City, Iowa.

fees. Perkins and Haskell-Klaus patients have the entire expense for their care paid by the state.

The most interesting work done at the university is for children. In the four years since the Perkins law has been operative, the children's de-

partment has grown so rapidly that a special hospital became necessary, and now the Children's Hospital, admirably situated on the west side campus, gives adequate provision for the treatment and care of the little folk. The building is



Crippled children at school.



A machine for every muscle—the orthopedic gymnasium, a unique feature which is run in conjunction with the orthopedic clinic.



Studying speech defects with the aid of the dictaphone in the Child Welfare Research Station.



A room of the baby ward, where pure democracy reigns. The babies do not draw race distinctions. The white and colored babies enjoy equal rights.



The milk laboratory in the Department of Pediatrics. The milk used in the children's hospital is tested every day. The laboratory diet kitchen, which is provided with a separator, a specially constructed pasteurizer, pressure cooker, sterilizer, fat tester, and other appliances. Every possible modification of milk may be obtained.



Above—a sun bath on the porch of the girls' ward. Below, at left—interior of the girls' ward in the Orthopedic Department. Below, at right—porch of the boys' ward at the recreation hour. Every face wears a smile, for the spirit of cheerfulness is all-pervading at the Children's Hospital.



Examining casts in the plaster cast room. The most interesting feature of the medical extension project at the university is the work done for children.



constructed entirely on one floor, planned with a series of wings reaching out from the administration rooms in the center. The hospital is an independent unit in itself and is equipped to care for any case. Rooms are large, airy, and well lighted, and the high ground and shady lawn on which the building is placed provide a cool spot in which the patients may live. The wards and smaller rooms open on wide, concrete porches, and it is possible for the beds to be wheeled out-

dred children are being treated in wards and private rooms which were designed for a capacity of seventy-five.

About 50 per cent of the deformed children are infantile paralysis cases, or cases resulting from infantile paralysis. The remaining 50 per cent includes other types of paralysis, cases of congenital deformity, ailments of the joints, and miscellaneous types.

A prominent feature is the work with hands



The General Hospital of the University of Iowa.

of-doors through French windows. At the Children's Hospital as well as at the general hospital all departments are favored with unusually large laboratories for research.

In its work for crippled children the university has achieved notable success and awakened much popular and professional interest. The orthopedic clinic in the university hospital, under the direction of Doctor Steindler, is one of the most widely known in the United States. By bringing strength and health to little cripples, straightening legs and arms and backs, and helping these boys and girls to be able to live as normal children the university performs a great service. These youngsters will grow into men and women able to care for themselves; they will contribute to economic life rather than burden the state, their home communities, and their parents and friends with their afflictions.

In the Children's Hospital only orthopedic cases and cases in internal medicine are accommodated; eye, ear, nose, and throat, and surgical patients are treated in the larger general hospital. Yet the Children's Hospital is incapable of caring for the demands made upon it. In the orthopedic department at the present time more than a hun-

and the upper extremities, of which there is a more than ordinary percentage of cases. In this department there were about seventy-five cases last year. Almost always the first treatment is operative. After the patient is able to use the hand or arm there begins the gymnastic treatment, or medical mechanics. This is followed by muscle education and, later, by vocational training. The whole field of preparing the child to make use of his new abilities is covered in detail, and the work is coordinated in order that children in school may have gymnasium treatment and muscle education while their vocational training is going forward along lines which they are best qualified or adapted to follow.

Heliotherapy

Cases of tuberculosis of the spine are treated by the Hibbs operation, which is very difficult and dangerous but of great benefit to the patient. All cases of joint tuberculosis are exposed to the sun according to the Rollier schedule worked out in Switzerland. This treatment has been found very beneficial in America.

In the case of a stiff joint it often happens that the hand or foot is so displayed as to be useless,

in which case the operation is to straighten the joints and put them in position where the member may be of service. Some of these cases recover complete use of the joint; in adults it is often possible to make new joints of soft tissue. However, it must be remembered that the work of the hospital is to help as well as cure and, even if a limb does not function perfectly after treatment, improvement is often so great as to be of the greatest value. In the work with joints, cases calling for proper alignment of club feet are among the most usual.

After a joint has been repaired through an operation, oftentimes its use is a question only of muscles. Too often no muscles are available, and the problem is to arrange the limb so it may be of some service without. In a few cases it has been possible to transfer muscles from one part of the body to another in overcoming this difficulty just as bone grafting, often resorted to, is a great aid in the creation of new joints. Many joint troubles are of syphilitic origin.

Spinal cases are frequently among the most interesting from a medical standpoint. Besides the Hibbs operation by Doctor Steindler, curvature is treated by fusing and the bones are straightened and strengthened.

Mechanotherapy

In the gymnasium of the orthopedic department a machine is at hand for the development and education of every muscle in the human body. Last year gymnasium exercise was given to 220 cases. This mechanical work is a highly important part of the treatment. The hospital has its own shop for the making and fitting of casts and braces; last year more than 2,000 casts were fitted to arms, legs, feet, and backs, and braces were made for 305.

The temper of the children and the attitude of the hospital staff in caring for these deformed unfortunates are matters of great consequence. Food which the boys and girls receive is the best that could be wanted for growing youngsters. Professional care is always tinged with a personal interest from doctors, nurses, and assistants. Clubs and churches over the state give clothing for children whose parents are unable to provide garments of the proper sort; more of this work is needed, and is being done. Any circus will put on a special miniature performance on the hospital grounds to amuse those youngsters who are unable to occupy seats of honor in the big tent. There is nothing in which the children do not have the best of care and attention.

While the work with crippled children is possibly more spectacular than in other departments,

yet digestive disturbances, diseases of all kinds, and problems of nourishment receive attention in the department of pediatrics under the direction of Doctor Byfield, and this clinic may be considered equally important in the large task of caring for the state's children.

Variety of Equipment Necessary

The equipment for pediatrics includes a very complete milk and diet kitchen providing every possible modification of milk. It is furnished with separator, a specially constructed pasteurizer, pressure cooker, sterilizer, fat tester, and other necessary appliances. Milk used in the hospital is tested every day. This department as well as others in the Children's Hospital and the general hospital building is unusually well equipped with research laboratories. One big ward is occupied



Old Capitol. The first capitol of the state of Iowa. Now used for purposes of university administration.

by the babies; two smaller wards are available for older children; and there are units of two and three beds which may be used for patients desiring greater privacy.

In conjunction with the nose and throat department the department of pediatrics seems lately to have discovered one of the causes of deforming rheumatism in children. The clinic has

had opportunity to observe a series of unusual cases resembling pellagra, and a report of the work done and conclusions reached is soon to appear.

The staff has been particularly impressed with the importance of the first few months and years of life, when the influence of heredity is most marked and when the most direct and successful work counter to heredity or in conjunction with it may be done. Dr. Amy Daniels of the Child Welfare Research Station has accomplished some notable work in infant nutrition, conducting experiments with white rats and guinea pigs to prove the nutritive values of food. She has shown that although chemical analysis may indicate food values to be much alike, the difference is often marked. Percentages in the proportion of ingredients for the rats and for infants vary only slightly and the diet for the hospital babies has been much improved as a result of her experiments.

The work of the eye, ear, nose, and throat department with Perkins children is no less important.

Foci of Infection

Perhaps the most interesting achievement in the line of oto-laryngology has been to prove that the foci of infection in crippled children is frequently in the para-nasal sinuses. It has also been demonstrated that nasal sinusitis in children is a very common disease, the best treatment for which is removal of adenoids. All research work in this department is done by the hospital staff, and Dr. L. W. Dean, dean of the college of medicine, is the department head.

Physicians in this clinic are privileged to bring vision to the blind and hearing to the deaf. Operations for cataracts and for other causes to restore sight are ordinary routine, and many a child who came to the hospital with senses impaired or altogether lost has left in full possession of them. In this connection probably the most important work relates to the eyesight of babies just born. Infants who come into the world with infected eyes are rushed to the hospital at once, where they receive the very best of care immediately. This work alone has saved the sight of large numbers of children.

Special Devices Employed

The equipment of the department is worth noting. The audiometer, an instrument for testing tonal range which was developed in the laboratories of the department of psychology of the university, is being put to practical use for the first time in this clinic. It will have a decided influence in the diagnosis of cases in otology. Operat-

ing and laboratory equipment are the best available. The only lacking requisite is space in which to care for all the patients who might be benefited under the law could they come for treatment. In spite of the fact that the general hospital provides nearly 600 beds for cases of all sorts, it is not large enough to handle all the patients who might come under the Perkins and Haskell-Klaus laws alone. In the eye, ear, nose, and throat department there is a waiting list at the present time of more than 150.

Retarded Children Educated

Schooling for the Perkins children has become an important part of the work done at the university. Soon after the Perkins patients began coming to Iowa it was found that older children whose senses were impaired, who had been unable to attend school because of poor health, or who had been kept at home through deformity, were in need of elementary education, and the school was established by the college of education of the university. Children of ten or twelve years, sometimes older, are unable to read and write and must be taught from the very beginning. Because of the variance in age and ability the work has many peculiar phases, and a staff of five teachers is now employed where one was at first sufficient. The boys and girls are greatly helped and upon being dismissed from the hospital many are enabled to enter school for the first time and take up their studies with children of their own age rather than in lower grades.

About 85 or 90 per cent of the cases at the Children's Hospital are treated under the Perkins law. It may be seen, then, of what importance this statute is.

Normal Child Not Neglected

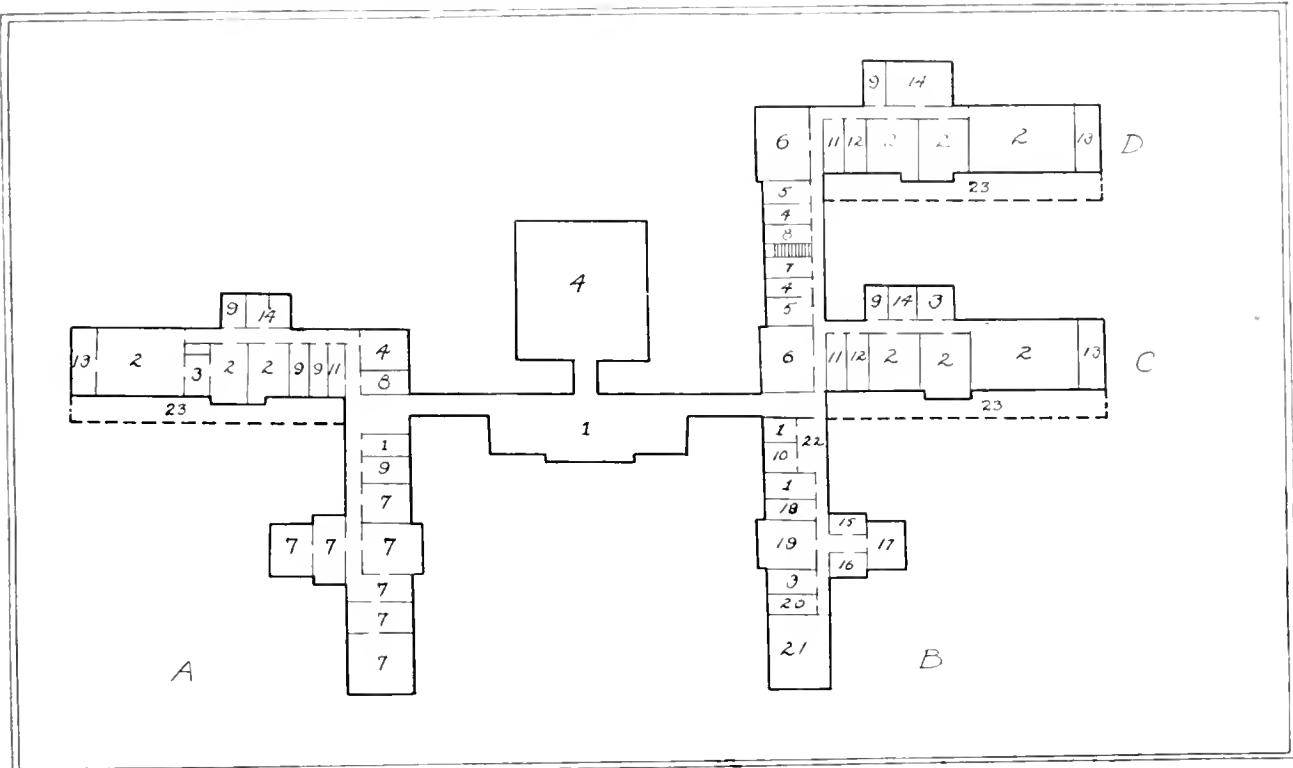
Sick and crippled children are not the only ones for whom the state undertakes medical and research work. In 1917 the state board of education was authorized "to establish and maintain at Iowa City as an integral part of the state University of Iowa the Iowa Child Welfare Research Station having as its objects the best scientific method of conserving and developing the normal child, the dissemination of the information acquired by such investigation, and the training of students for work in such fields."

This work, it should be emphasized, is with children who are normal, or very nearly normal. Investigation is carried on under four main divisions: psychological, nutritive, sociological, and anthropometric; methods used look toward prevention rather than cure. Research has disclosed conditions which aid or hinder growth physically,

mentally, and socially, and the station has undertaken a campaign of education to help parents apply the discoveries made.

Some special work has been done in the problems of speech, particularly in the field of motor coordination, and the station has worked with

comes to Iowa from the University of Pennsylvania hospital in Philadelphia. Mild cases of mental disturbances will be treated in conjunction with the department of psychology, which will take an active interest in the work. Doctor Orton is a member of the university faculty this



Ground plan of the Children's Hospital. Key—(A) Department of Pediatrics; (B) Orthopedic Department; (C) Girl's Wing; (D) Boy's Wing; (1) Offices; (2) Wards; (3) Toilets; (4) Kitchen; (5) Serving Rooms; (6) Dining Rooms; (7) Laboratories; (8) Nurses' Rooms; (9) Private Rooms; (10) Examination Rooms; (11) Isolation Rooms; (12) Quiet Wards; (13) Enclosed Porches; (14) Utility; (15) Sterilizing Room; (16) Surgical Dressing Room; (17) Operating Room; (18) Plaster Bandage Room; (19) Plaster Cast Room; (20) Massage Room; (21) Gymnasium; (22) Waiting Room; (23) Open Concrete Porches.

many children to effect cures or improvement in this field. A course of treatment for mental defects in children has also been mapped out. Vocational guidance is still another field which the research station has entered successfully. In nutrition the department's expert is Dr. Amy Daniels. The results of her work were noted above in relation to their application at the Children's Hospital.

Pamphlets, monographs, and lectures provide means of disseminating information to the people of the state. The facilities afforded for study and the work done are such as to attract graduate students from many colleges and universities, and men and women studying in the station contribute much original research and investigation.

Psychopathic Hospital Projected

Within a year the university hospital is to enter the field of psychiatrics. A new psychopathic hospital is being erected on the west side campus at an expense of \$175,000. The psychopathic work will be in charge of Dr. Samuel T. Orton, who

year and will make visits to the campus at intervals, but the hospital which he is to direct will not be ready until next September at the earliest and work in the department will not be begun until that time. The psychopathic hospital hopes to cure many mild mental cases, prevent others, and make a study of causes which will enable the successful treatment of demented persons.

Free Dental Clinics

Care of the teeth in the clinical infirmary of the college of dentistry is another service the university extends to the people of Iowa. The infirmary is 140 by 60 feet, new and modern, and accommodates 150 dental chairs, equipments, and cabinets. Every set of equipment is provided with connections for water, gas, electricity, compressed air, and drainage. Adjoining the infirmary are an operating room and connecting chambers with full hospital accommodations for oral surgery. All dental work is adequately supervised and the cost of treatment is the cost of material used.

The laboratories of the state board of health, which are located at the university, safeguard the public health in every possible way. Over 22,000 examinations were made during the year ending June 30, 1919. Examinations for the purpose of diagnosing diseases were: 8,830 for diphtheria; 2,630 for tuberculosis; 1,934 for typhoid fever; 22 for rabies; and the rest miscellaneous. In the first year's work in the Wassermann division, where tests are made for venereal diseases, 4,687 examinations were made. In taking analyses of water 1,879 samples were examined during the year. The Pasteur treatment for rabies was administered to eight patients, each of whom received twenty-five treatments. A state epidemiologist, whose duties are to prevent outbreaks of disease and curb them in the best possible way when they occur, is stationed at the university, his work being in close connection with the board of health. He acts in matters of sanitation and makes inspections and examinations to determine the possible presence of disease.

Campaign of Health Education

Finally, through the extension division of the university a campaign of health education is conducted among the people of the state. In some ways the work is done personally; more often it takes the form of bulletins and pamphlets.

This year for the first time extension work in the interests of the Perkins children is being undertaken. A registered nurse, who is also a trained social worker, visits the boys and girls in their homes to give health education, to see that advice prescribed by the hospital doctors is followed, and make certain that the children are being educated in a manner which will link up with instruction given at the hospital school. Environment of the children is considered as well as medical needs, and the nurse sees that proper home life is afforded. When children are not receiving proper nutrition, a charitable agency or public health service is enlisted to provide proper food if the families are too poor to afford the right kind of nourishment. When further hospital care is found advisable the nurse recommends that the child be returned for further treatment.

Work in the field of rural sanitation and hygiene will be done this year by a former army expert. Details remain to be worked out.

Education through bulletins is to be on a larger scale than ever before, and the field of nutrition will be particularly emphasized. Much attention will be given to publications and bulletins on the prenatal care of the mother. The whole subject of child welfare, dealing particularly with

mothers and infants, will be covered. Some bulletins will also be published for the benefit of physicians, this material to be sent only on request. Research will be the only field of child welfare which the extension division will not touch.

If the university is to be of greatest service the work can not end within its four walls, since the problem of health lies in prevention as well as in curing diseases and ailments. The University of Iowa seeks to expand its facilities for education, and in this manner perform a service as important as in providing medical treatment.

GOVERNMENT WANTS WORKERS IN VENEREAL DISEASE CAMPAIGN

The recently created Interdepartmental Social Hygiene Board of the United States Government is in need of a number of specially trained men and women to complete its organization. The United States Civil Service Commission has announced examinations for the following positions: Chief of division for scientific research, \$3,500 to \$4,500 a year; chief of division for educational research and development, \$3,500 to \$4,500 a year; educational assistant, \$2,800 to \$3,600 a year; chief of division of relations with States, \$3,500 to \$4,500 a year; chief of division of records, information and planning, \$3,500 to \$4,500 a year; supervising assistant and inspector, \$2,800 to \$3,600 a year; field agent, \$1,800 to \$3,000 a year. All positions are open to both men and women. Detailed information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board at the post office or customhouse in any of 3,000 cities.

PREPARING FOR RECURRING INFLUENZA EPIDEMIC IN 1919-20

In response to widespread questioning by the public and physicians, the United States Public Health Service has prepared a statement in which are presented the accepted facts and probabilities as to whether a recurrence of the 1918 influenza epidemic may be expected in the coming winter.

Probably, but by no means certainly, there will be a recurrence of the influenza epidemic this year.

Indications are, that should it occur, it will not be as severe as the pandemic of the previous winter.

City officials, state and city boards of health, should be prepared in the event of a recurrence.

The fact that a previous attack brings immunity in a certain percentage of cases should allay fear on the part of those afflicted in the previous epidemic.

Influenza is spread by direct and indirect contact.

It is not yet certain that the germ has been isolated, or discovered, and as a consequence there is yet no positive preventive, except the enforcement of rigid rules of sanitation and the avoidance of personal contact.

A close relation between the influenza pandemic and the constantly increasing pneumonia mortality rate prior to the Fall of 1918 is recognized.

It is now believed that the disease was pretty widely disseminated throughout the country before it was recognized in its epidemic state. This failure to recognize the early cases appears to have largely been due to the fact that every interest was then centered on the war.

MEDICAL EXTENSION WORK

BY DON K. MARTIN, EXECUTIVE SECRETARY, OHIO STATE MEDICAL ASSOCIATION, COLUMBUS, OHIO

WITH a realization that the scientific practice of medicine requires constant specialized study the Ohio State Medical Association, through its Committee on Medical Education, has for the past four years held annual series of post-graduate lecture courses on medical subjects throughout the state in order to inform the general practitioners on the latest methods in diagnosis and treatment. This system, which was inaugurated in 1916, took into account the impossibility on the part of most physicians to devote the time or the expense necessary to attend medical universities from time to time to learn of the more recent advances in the scientific practice of the profession. The Committee on Medical Education was inaugurated that year and has steadily increased the interest on the part of the profession in the group meetings which are held each summer and autumn.

Meetings in Accessible Centers

These meetings are planned months in advance and are held in from twelve to fifteen of the most accessible centers of population throughout the state. Each season a definite subject is treated, such as fractures, obstetrics, and physical diagnosis; and this year a resumé of venereal diseases is being presented by a specialist who was head of the Bureau of Venereal Diseases for the state of Ohio during the war period.

In selecting the lecturers the committee is careful to find not only a member of the profession who is well known throughout the state, but one who through the practice of his particular phase of medicine is in possession of specialized information in that particular branch, broader than it is possible for the general practitioner to attain.

Motion Pictures Are Used

When possible and convenient, these group meetings are combined as a part of the program for annual district meetings and usually are held in the late summer, thus avoiding the extreme hot weather, and just prior to the start of the fall college year to enable the lecturers, who are in most cases instructors in medical schools, to devote the necessary amount of time to the program. Many of the lectures are graphically illustrated by motion pictures and lantern slides and in some cases, where material is available, clinics are held. Each meeting comprises the greater part of one day and evening, and is usually divided into three sessions, possibly including a luncheon or dinner

as a social feature. At a number of these meetings as many as 60 per cent of the physicians in the six or eight counties included are in attendance.

In order to coordinate the work in arranging the series of meetings, the headquarters of the State Medical Association handles all the details including the series of announcements to the individual members of the profession, and the newspaper stories. Local plans are placed usually in the hands of the president or secretary of the county medical society where the particular meeting is scheduled.

Some of the Lecturers

Among those who have given of their time and talents in this work, as lecturers, are Dr. Charles Edwin Briggs, Cleveland; associate professor of surgery, Western Reserve University School of Medicine; Dr. William D. Porter, Cincinnati, clinical professor of obstetrics, Medical Department, University of Cincinnati; Dr. Charles F. Hoover, Cleveland, professor of medicine, Western Reserve University School of Medicine, and Dr. Harold N. Cole, Cleveland, assistant professor, dermatology and syphilis, Western Reserve University School of Medicine.

The policy of the Ohio State Medical Association is indicated in the attitude that it is not only the duty of the organized profession to constantly raise the standards of practice and stimulate research and information in the science, but to exert its full efforts in sickness-prevention movements. In this connection the Committee on Control of Cancer, of the Association, cooperating with the Committee on Medical Education, is completing plans for a state-wide campaign of information, first to the profession, and then the education of the public in preventive measures. The Association also was largely responsible in the public campaign of education against tuberculosis and with the organization some years ago of the Ohio Society for the Prevention of Tuberculosis.

Medical Association of the Southwest

The Medical Association of the Southwest holds its fourteenth annual meeting at Oklahoma City, Okla., October 6, 7 and 8. The gathering has been planned to take the form of a welcoming home for the medical officers of the army in the Association membership. Those participating in the program and discussions include the health officers from various health departments of the state.

HOSPITAL ASSEMBLY GIVES ATTENTION TO PUBLIC HEALTH ISSUES

Many significant and valuable suggestions as to methods by which a closer cooperation of hospitals and other public health agencies may be secured were brought to the attention of delegates in attendance at the twenty-first annual convention of the American Hospital Association, during the gathering held at Cincinnati in the second week of September.

The American Hospital Conference held sessions simultaneously and adopted a constitution wherein the name of the Conference is changed to the American Conference on Hospital Service. The American Dietetic Association held its second annual convention in conjunction with the conferences of the two hospital organizations.

Dr. A. H. Warner, president of the American Hospital Association, in his presidential address, proposed that the American Hospital Association turn its attention to the development of state and sectional hospital associations which would be affiliated with the national body.

Common to the discussions of each of the three organizations was the problem of training courses and facilities for the education of professional workers in practically all departments of hospital administration.

A review of the proceedings and reports of the three groups brings to attention several questions affecting the relations of hospitals and the public health departments and welfare agencies. Of main importance from this standpoint are the problems of hospital standardization and matters that are the subject of legislation in various states.

The report of the legislative committee of the American Hospital Association, which is intended to give a brief account of the activities of the committee during the past year, seeks to emphasize the importance of the relations between Federal and state governments and the hospitals, as well as the necessity for organized effort on the part of the hospitals to strengthen and further improve these relations. For the protection of the public health and the financial and other interests of the hospitals it demands organized legislative action.

The report summarizes, to some extent, the opinions voiced from the convention floor on the subjects of public health and legislation. Some interesting excerpts from the report are here quoted:

"All hospitals, whether public or private, have certain relations to departments of state. They are sometimes subject to certain rules and regulations made by state departments, and often bound by laws of supervision or control at the hands of the state. The laws, rules and regulations governing such relations are not alike in any two states. It may very properly be said of the plan of supervision and control of hospitals by state governments: 'Mediocre, what there is of it, and, a lot of it, such as it is'

"During the year the committee has sought to become informed, so far as possible, of the exact relations between hospitals and the state governments. Much data has been gathered, and some analyses made of it. It warrants the conclusion that there is work to be done in this direction by the organized hospitals. They must take up these matters in each state, and straighten them out. The association can help to pave the way."

The committee warns that the hospitals of every state will be vitally affected by whatever form of legislation that may be adopted to enforce the Federal prohibition law. They are concerned regardless of opinions on the merits of the prohibition. Says the report: "If hospitals

are to be permitted to dispense distilled spirits and wine for medical purposes under national prohibition, iniquitous regulations, similar to those of the Harrison Act, may well be anticipated. But, the hospitals are more concerned from another angle—namely, patent medicines."

Attention is called to the fact that in one state at least, which has adopted state prohibition, the dry enforcement bill was written in the special interests of the patent medicine manufacturers to the detriment of public health. A repetition is possible in Congress, the report warns, if the dry enforcement regulations are unwisely made.

The following officers were elected for next year: President, Dr. Joseph B. Howland, superintendent Peter Bent Brigham Hospital, Boston; president-elect, Dr. Louis R. Baldwin, superintendent University Hospital, Minneapolis, Minn.; first vice-president, Mr. H. E. Webster, superintendent Royal Victoria Hospital, Montreal, Canada; second vice-president, Dr. R. G. Brodrick, superintendent San Francisco Hospital, San Francisco, Cal.; third vice-president, Miss Margaret Rogers, superintendent Jewish Hospital, St. Louis; treasurer, Mr. Asa S. Bacon, superintendent Presbyterian Hospital, Chicago; trustee for one year, Dr. Louis H. Burlingham, Barnes Hospital, St. Louis; trustee for two years, Dr. Andrew R. Warner, superintendent Lakeside Hospital, Cleveland; trustee for three years, Rev. Maurice F. Griffin, St. Elizabeth Hospital, Youngstown, Ohio, and vice-president of the Catholic Hospital Association; trustee for three years, Mr. Richard P. Borden, Union Hospital, Fall River.

It was voted that the convention should meet next year in Montreal, Canada, the time to be either during the latter half of September or the first half of October.

The American Conference on Hospital Service postponed the election of a president until the man most qualified for the office can be found.

The officers elected, with the exception of president, who, as already indicated, will be selected later, are: First vice-president, A. R. Warner, M.D., superintendent Lakeside Hospital, Cleveland (American Hospital Association); second vice-president, Miss Clara D. Noyes, Bureau of Nursing, American Red Cross (American Nurses Association); treasurer, Harry E. Mock, M.D., Chicago, American Association of Industrial Physicians and Surgeons; trustees, for three years, Dr. S. S. Goldwater, Mount Sinai Hospital, New York City (American Hospital Association); Dr. John G. Bowman, Chicago (American College of Surgeons); Dr. John M. Dodson, dean Rush Medical College (American Medical Association); trustees, for two years, Father Charles B. Moulinier, Marquette College, Milwaukee (Catholic Hospital Association of United States and Canada); Miss Edna G. Henry, Social Service Department, Robert W. Long Hospital, Indianapolis, Ind. (American Association of Hospital Social Workers); Dr. Roger Morris, Association of American Medical Colleges, University of Cincinnati Medical School; trustees, for one year, Col. James D. Glennan, Medical Department, United States Army; Dr. David S. Strickler, Denver, Colo., Federation of State Medical Boards of United States; Senior-Surgeon J. H. White, Medical Department of United States Public Health Service.

The next meeting of the Hospital Conference will be held in Chicago during the first week of March, 1920. The delegates favored the limiting of work undertaken for the present to three or four definite problems. Committees were chosen to pursue investigations in the fields so outlined, which are the Intern Problem, the Nursing Problem, Standardization of Hospital Service, and the Medical Aspects of Social Insurance.

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

THE COST OF LIVING VS. THE HIGH COST OF DYING

THE high cost of living is in the minds and on the lips of every one. The press is daily giving screaming headlines to this or that angle of the subject. Grand juries are busy indicting profiteers first in this and then in that city. The temperatures of cold storage-house owners are fluctuating rapidly with each new public revelation. The Attorney General of the United States has asked Congress for an expense account of \$50,000 a day to bring the malefactors to justice. The Railroad Brotherhoods have given the government the alternative of reducing the cost of living or raising the wages of its members. The economists, on their part, are crying for more production to offset increased costs.

The high cost of dying, on the other hand, lingering or acute illness, and injury, is not receiving such notice. Discussions of certain phases of the general subject, as promoted by the proponents of health insurance, have languished with the adjournment of state legislatures. And yet the high cost of dying, unlike that of the high cost of living, is a permanent question; it is in no way less complicated and is perhaps more far-reaching in its economic and social effects. The President, his Attorney General, Congress, state and municipal attorneys, professors of political science, the press, and the pulpit—all are contributing their share to the vexing problem of reducing living costs. The whole rumpus, extending over months, has brought a reduction of a few per cent in costs. All power and good staying qualities to this goodly brand of reformers!

In comparison, how feeble have been the efforts, how small the crowd of those who are seriously engaged with reduction of the unnecessary high cost of illness by some definite state and federal plan of organized curative and preventive medicine.

Relatively, the science of medicine has advanced rapidly enough, but its organized applica-

cation to the people as a whole is decades behind research both for preventive and curative medicine. It is proverbial that only the rich and the very poor receive the best that the medical profession and its allied professions have to offer. How this condition may be altered, how medicine and surgery in its best form may be made accessible to the great middle class, the backbone of the nation, is yet unanswered.

Many studies have been made as to the average costs per family of medical attention, some of which include dental, nursing, and hospital costs. A fair deduction to be made from these surveys is that at least 5 per cent of the income of each family would on the average be required to meet the combined costs of all curative medical service as it now obtains. Apparently no one with authority has yet formulated a plan nor estimated the costs of an adequate medical service of diagnostic and curative nature.

The only discussions that have seemed to border on the question in hand have been those stimulated by the proponents of health insurance, whose main energies, however, are given to setting forth the advantages of distributing the financial burden of illness by some state-wide compulsory payment of insurance premiums. Little or no attention or interest has been excited in the all important question as to how the quality of medical, surgical, nursing, dental, hospital, and diagnostic clinical service may be raised; how the number of units of such service may be increased so as to meet the greater demand; and, finally, how such service may best be made available to all. To deny that these are all important in any plan for health betterment, to fail to include these in the fundamental structure of any health insurance plan, is proving false to the trust of the public, whose hopes are being raised by the glowing promises for social justice therein.

One ray of hope that some such thoroughly balanced, positive, creative health program may receive consideration lies in the conference of wide scope that was called into being by the

American Public Health Association. The other ray of hope, that curative medicine in all its aspects may be squared with the problem of health insurance, comes from the appointment of a committee by the recently organized American Hospital Conference to study this subject. Whatever is promising in this latter direction comes of the fact that membership in this association is comprised of some fifteen national organizations,¹ all having to do with the science of disease and its cure. The members of such a committee could hardly hope that any narrow individualistic opinions would be tolerated or survive. Their deliberations would be national in scope, and could include every social economic and scientific phase of the subject. Theory of reform would be met by practical experience with some promise that a workable and acceptable solution would be found.

These component national associations have each in turn been attempting to standardize their practices. When by a series of conferences they have conscientiously fitted the results of their studies, one to the other, into one harmonious scheme of organization for the care and cure of the sick, then the public may know that a plan for health insurance evolved out of the rich experience of all these associations is safe, sound, and worth any sums of money required for its provisions. Such a plan would be democratic in origin; it would receive universal support at the outset and would contribute immeasurably to the welfare of the people. Inasmuch as it would greatly reduce unnecessary sickness and suffering, it could add materially to national productivity. In the sense that it could add to production such a plan could also reduce the high cost of living.

LABOR LEGISLATION REVIEW URGES COMPULSORY HEALTH INSURANCE

The story of the New York campaign for health insurance, the text of the new state health insurance law, and an introductory note by John B. Andrews, secretary of the American Association for Labor Legislation, in support of compulsory health insurance as one of the mediums through which the nation may avert social disorder and violence, appear in the June issue of the *American Labor Legislation Review*. Rehabilitation for industrial cripples is declared a proper matter for congressional action. Mary MacArthur, general secretary of the British Women's Trade Union League, is the author of a paper

entitled "American Health Insurance Bill Better Than British Act," Margaret Bondfield, assistant secretary of the National Federation of Women Workers of Great Britain, declares that "Social insurance, if it is to be economically conducted for the benefit of all those who are in greatest need of this protection, must be universal, that is, compulsory in form."

CINCINNATI ORGANIZES SAFETY COUNCIL

The National Safety Council announces that a Local Safety Council has recently been organized in Cincinnati. Although this new local will conduct all of the activities usually carried on by similar organizations in other cities, it is unique in that it is closely affiliated with the College of Medicine of the University of Cincinnati.

This college has instituted a Department of Industrial Medicine and Public Health, the purpose of which is to offer special courses for the training of industrial physicians and surgeons. In connection with the regular medical courses the student will be given instruction in industrial medicine, shop sanitation, occupational hazards and diseases, labor economics, labor conditions and problems, industrial relations, accident prevention and employment. The special courses are being financed by the manufacturers of Cincinnati.

The staff comprises a medical director, a woman sanitarian to work with the women employed in industrial occupations, a full-time employment and industrial relations man, and a full-time safety engineer. The employment and industrial relations man will act as secretary of the local Employment Managers' Association and the safety engineer will act as secretary of the local council of the National Safety Council. Both will assist in teaching the special industrial-medical courses and in directing the laboratory and field work to be done by the students. Half of the student's time will be spent in the industries and half in the University.

Extension Course in Accident Prevention

The staff will not only instruct physicians in safety, employment, and industrial relations and give them degrees or certificates after completion of the course, but will also conduct extension courses in accident prevention and employment management. It is expected that the students in the cooperative engineering course at the University, as well as persons employed in the industries, will take advantage of the opportunities afforded.

Mr. G. H. McLain, formerly safety engineer and assistant to the supervisor of labor at the Dayton Electrical Company, Dayton, Ohio, has been appointed secretary of the Cincinnati Local Safety Council. Mr. McLain is a graduate of Purdue University, where he received special industrial training. He has taught industrial courses in high schools and normal schools for a period of five years, and spent five years as a traveling salesman selling machine tools. By education, experience and personality Mr. McLain is well qualified for the secretaryship of this new local council, which, because of its affiliation with the University and its activities in public service, requires an unusual combination of qualities and talent.

The General Electric Company recently established a dental clinic for the employees at the company's works in Schenectady, N. Y. Free examination and advice is given, and minor treatments are done by the company dentist. Employees suffering from acute troubles are advised to consult their family dentist.

1. These organizations are: American Association of Industrial Physicians and Surgeons; American Association of Hospital Social Service Workers; American College of Surgeons; American Hospital Association; American Medical Association; American Nurses Association; Association of American Medical Colleges; Catholic Hospital Association of the United States and Canada; Federation of State Medical Boards of the United States; International Compensation Board; Medical Department of the United States Army; Medical Department of the United States Navy; National League of Nursing Education; National Organization for Public Health Nursing; and the United States Public Health Service.

MEDICAL AND HOSPITAL TREATMENT UNDER UNITED STATES COMPENSATION ACT

BY JOHN W. TRASK, SURGEON, UNITED STATES PUBLIC HEALTH SERVICE, MEDICAL DIRECTOR, UNITED STATES EMPLOYEES' COMPENSATION COMMISSION

THE furnishing of adequate medical and hospital treatment for injured government employees under the Compensation Act has offered certain difficulties. Some of the difficulties have been due to the status of the practice of medicine, others to the conditions of hospital management.

The benefits provided by the United States Employees' Compensation Act to employees of the Government injured

in the performance of duty are: (1) Medical and hospital treatment. (2) Money compensation for loss of wages in excess of three days. (3) Money compensation to the surviving dependents of employees dying as a result of injuries.

Employees injured, even though the injuries be slight and cause no interruption of work, are entitled to treatment for the injuries if there is any need for it. Only those are entitled to compensation whose injuries cause an absence from work in excess of three days. Naturally, therefore, the number who receive medical benefits under the Act is much greater than the number who receive money compensation for time lost.

Provisions of the Law

The principal section of the Law relating to medical treatment and hospital service is Section 9, reading as follows:

That immediately after an injury sustained by an employee while in the performance of his duty, whether or not disability has arisen, and for a reasonable time thereafter, the United States shall furnish to such employee reasonable medical, surgical, and hospital services and supplies unless he refuses to accept them. Such services and supplies shall be furnished by United States medical officers and hospitals, but where this is not practicable shall be furnished by private physicians and hospitals designated or approved by the Commission and paid for from the employees' compensation fund. If necessary for the securing of proper medical, surgical, and hospital treatment, the employee, in the discretion of the Commission, may be furnished transportation at the expense of the employees' compensation fund.

WHAT IS REASONABLE SERVICE?

The problems involved in securing proper and adequate medical attendance for government employees are of particular interest to all who are concerned in furnishing hospital benefits to large numbers of employees.

The Commission found it could not afford the services of any but the most competent physicians available.

Uniformity of fee schedules, and uniformity of practice are impracticable. The best service and the cheapest is that best adapted to the individual case, the objective being the quickest and completest possible restoration of function.

The Law provides what may be considered unlimited medical service, that is, it provides that medical service for an injury shall be furnished for a reasonable time after the injury. As a reasonable time will be as long as the injured person has need of treatment on account of the injury, the service is coexistent with the need thereof.

The provision that the medical and hospital service furnished shall

be reasonable limits it to that which may properly be considered to be effective in bringing about the restoration of damage done by the injury, that is, the restoration in so far as possible of the injured person to the physical condition possessed by him previous to the injury. This implies efficiency of the service rendered.

The Law further provides that United States medical officers and hospitals shall be the medium through which treatment shall be furnished, but that where it is not practicable to secure the desired medical and hospital service from United States medical officers or hospitals, then it shall be furnished by private physicians and hospitals designated by the Compensation Commission.

Distribution of Beneficiaries

Government employees are at work in all inhabited portions of the country, and in a measure in the uninhabited portions as well. In addition to the 105,000 civil employees of the executive departments and legislative branch of the Government in the District of Columbia, there are the hundreds of thousands of employees of the departments scattered throughout the country. The Treasury Department has its Customs Service at ports and at points on the international boundaries. It has its mints. The War Department has its arsenals which are large industrial establishments employing many thousands, its quartermaster depots and other establishments. The

Navy Department has its navy yards which are similarly large industrial plants. The Department of Agriculture has its agents and workers in all parts of the country. The Department of the Interior has its employees. Then there are the employees of the United States Courts and those of the Post Office Department with its post office clerks and carriers in every city, town, and hamlet, and its rural letter carriers covering the country as with a net work, aggregating in all several hundred thousand.

As most injuries are of an emergency nature and require immediate treatment, if at all, and as United States hospitals and medical officers have a relatively limited distribution, the purpose and need of designating physicians and hospitals is apparent.

The War Department has met the emergency medical needs at its arsenals, and principal ordnance plants and supply depots by furnishing dispensary service. The Navy has likewise cooperated by furnishing dispensary service for injured employees at its navy yards. The United States Public Health Service has cooperated by making freely available to all beneficiaries of the Compensation Act its hospitals and dispensaries, wherever located. The expansion of the facilities of this service, because of its needs in connection with the treatment of the discharged soldiers and sailors, beneficiaries of the War Risk Insurance Act, is making available increasing medical and hospital facilities also for the beneficiaries of the Compensation Act.

Problem of Caring for Large Numbers

The attempt of the Commission to supply efficient medical and hospital service has brought out clearly a number of facts of particular interest to those in any way interested in the furnishing of hospital benefits to large numbers of employees. The idea was first held that the necessary medical, surgical, and hospital service for injured employees could be best obtained wherever Government hospitals and dispensaries were not available by the designation and use of hospitals, as it was believed that the hospital represented group medicine; that the injured employees could be sent to the hospitals and there would receive the attention of whatever specialist the nature of their various injuries indicated, be it the general surgeon, orthopedic surgeon, ophthalmologist, neurologist, roentgenologist, pathologist, or bacteriologist; that the question of medical and surgical treatment could be left to the hospital; and that only where there was no Government hospital or dispensary, or private hospital would there be need of designating private physicians.

The Commission, however, early found that leaving the question of medical and surgical treatment to the hospital was not a practicable arrangement; that the hospital service as relates to bed, board, and nursing was in most city hospitals a thing quite apart from the furnishing of the efficient medical and surgical attention implied by the Federal Compensation Act. Patients sent to hospitals were frequently given scant consideration. If assigned to a particular physician, it was often to one of lesser experience. Often the cases seemed to be left entirely to the inadequate attention of the busy resident staff. This was true in general, excepting in the proprietary hospitals in the smaller towns. It was true of even the better hospitals, one might say of the best hospitals, of the larger cities.

Some Difficulties Encountered

The difficulties encountered in sending injured employees to hospitals for treatment, instead of to selected surgeons, is illustrated by the case of M. M., an employee of the Brooklyn Navy Yard, who sustained a fracture of the clavicle while working on the dry dock, Thursday, May 29, 1919, at 10:30 p.m. He was taken in the naval ambulance to a hospital, where he remained until 2:00 a.m. before being assigned to a ward. The patient states in a letter of June 27 that Friday morning, the day after the injury:

A doctor came around and looked at me and went away. That's all I saw of a doctor that day. In the afternoon my shoulder began to swell and get black. Saturday morning, May 31, another doctor came, also looked at me and also went away. Between two and three o'clock that afternoon a doctor came and set my shoulder in a rough manner, not half bandaging it to keep it in place. Sunday morning the bandages became loose. A doctor came and promised he would fix the bandages within a half hour, but did not show up that day. A doctor came around and said that he would like to have an x-ray picture taken of my shoulder on Monday morning. Monday morning the doctor came and promised to re-fix my bandages, but did not do so. I asked him if he were going to have an x-ray picture taken, but he said no. Nurse came around, said I was to be discharged the next day, Tuesday. Tuesday morning a doctor came around and fixed the bandages in a rough manner. I was let lie there from Thursday night to Tuesday without proper treatment. Saturday morning they gave me a dose of salts and let me lie there in bed without any covering to go to toilet until half past one in the afternoon, which left me in agony. When I was discharged my shoulder was still out of place and it is still not in place.

Results Depend on Management

The following illustration is cited as being one of a type not uncommon in the experience of the Commission in sending its beneficiaries to hospitals. The point of view of the hospital in this case was more or less typical of hospital manage-

ment, and perhaps, under existing conditions, was in a measure justified. The patient in this case sustained a fracture of the *os calcis*, with other injuries of the right foot and, as a result, developed rigid flat-foot. There was also an injury of the left foot, at least a sprain, probably also a fracture, but the exact nature of it was never determined.

June 1, 1918, H. W., aged 37 years, helper on a Government truck, was thrown from the truck in a collision with a freight car at a crossing. He landed on his feet, "injuring both ankles." An ambulance was summoned and the patient was taken to one of the well known hospitals in New York City. On June 4 he wrote the Commission as follows:

In reference to the way I was sent home from the hospital Saturday, June 1, I beg to say these are the words the doctor said to me: "I will bandage your ankle so you will be able to walk. How are you going to get home?" I said: "I don't know." Then he said: "If you lived in this district, I would send you home in the ambulance." When I saw they did not want me there, I said, "Well, lend me a pair of crutches and I will manage to get home."

Naturally, the man, on going home under these conditions, sent for his family physician under whose care he remained until August 13, when he applied to a United States Public Health Service Hospital for treatment, and the nature of his injury was determined and such treatment given as offered best hopes of beneficial results in consideration of the length of time that had elapsed since the injury was sustained. The man was unable to go back to work until January 14, 1919, and he will probably carry through life a greater disability than would have resulted if expert treatment could have been obtained from the beginning.

A Hospital Viewpoint

As the injury was a rather serious one, the Commission wrote as follows to the superintendent of the hospital to ascertain why the case had not received adequate attention and treatment:

There is enclosed herewith a copy of a letter received from one H. W., dated June 4, 1918, also copy of our reply. Mr. W. was a civil employee of the Quartermaster Department, U.S.A., and was a beneficiary of the Federal Compensation Act because of his injury. Pursuant to the provisions of Section 9 of the Compensation Act, copy enclosed, your hospital was designated as a hospital for the care of these beneficiaries. The nature of the treatment furnished by you in this case and the atten-

tion given to the injured employee are not as complete or as considerate as the Commission purposes to furnish to injured employees. The point of view of the hospital toward these cases seems to be somewhat different from that of this Commission. Kindly advise the Commission whether the manner in which this case was handled represents the policy of the hospital, or whether it was simply

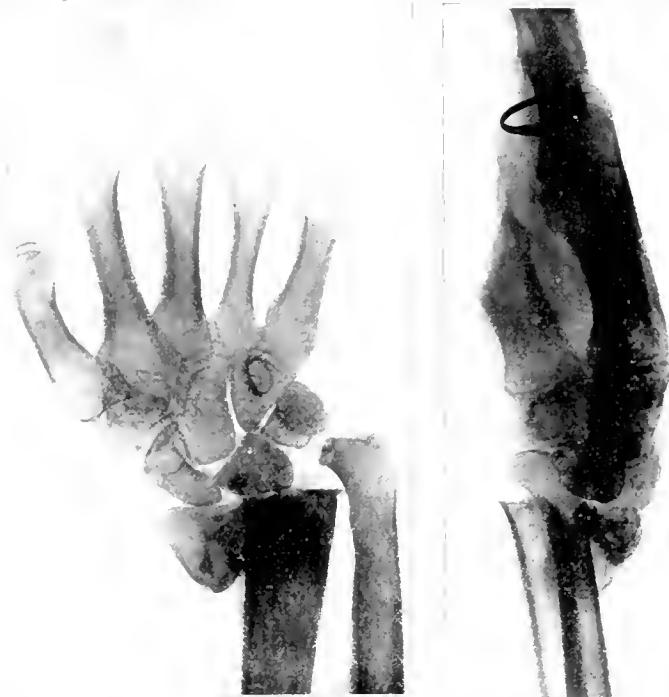


Fig. 1.—At the left is shown an X-ray photograph taken twelve months after the injury was sustained. Shows dislocation and malposition of parts due to inexpert and careless treatment. The result is a permanent cripple. At the right is a photograph of the same injury giving a lateral view of the parts.

an occurrence that will sometimes happen in a busy institution.

The reply from the hospital was as follows:

In reply to your letter of August 23, 1918, we beg to state that Mr. W.'s complaint is entirely unjustified. For a young, healthy, able bodied man like Mr. W., at this particular time, when it is of the utmost importance to conserve every resource, to demand the time of doctors and nurses in our wards to look after sprained ankles, is, in our estimation, something to be very much ashamed of and decidedly unpatriotic.

If the patient were a boy of 14 or 15 years old, an elderly man, or a sick man, we would not have permitted him to leave the hospital alone if we were obliged to engage a taxicab at our own expense.

There is nothing in the Federal compensation law that we can construe as authority to transport patients from the hospital at your expense and, even if we did have such authority, we would use discretion about exercising it in the case of a patient like Mr. W.

Now in regard to the third paragraph of your letter, we are going to be very frank about answering it, as we are anxious to avoid misunderstandings and to save your time as well as our own in reference to complaints of this character. In the first place, every case that comes to this hospital is examined by a competent doctor, and sometimes by more than one when it is necessary, and if you delegate us to look after your employees we think it

is only fair to request that you place some confidence in us rather than too much in the statements of your employees.

Hereafter, every patient that is sent in from your department is going to be reported to his superior officer immediately after examination, and we are going to state the diagnosis, treatment necessary, and probable length of disability. We have found several patients from your department whom we think were malingeringers. The majority of the people you have sent us were suffering from strains, contusions, and sprains,—most of them slight. These are very difficult conditions to treat if a patient is inclined to malinger because there is little or no treatment necessary, and there is no reason why a patient should become dissatisfied because a doctor doesn't spend an hour in finding out that he has a slight contusion of the ankle.

We have done everything possible to cooperate with the War Department, and it has been our policy to discourage patients from discontinuing work and coming to the hospital for unnecessary treatment. We do not have much trouble with employees of private companies because there is a clause in the New York state law which provides that the patient must be disabled for two weeks before he can collect his wages unless his injury is severe enough to disable him for seven weeks.

If you find at any time that there is negligence on the part of our doctors, nurses, or clerks, please report it immediately, as we do not want anyone coming to the hospital to receive improper treatment, and if they do we want to be informed about it.

We appreciate the rigid investigation you have made, and trust that our explanation will give you a better understanding of our position.

Diagnostic Facilities Must Be Adequate

At the time of writing the above letter the hospital had not been advised of the serious nature of the injury in this case. In the experience of the Commission fracture of the *os calcis* is a serious injury, demanding expert treatment; in fact, it finds that many so-called sprains are complicated by fractures and are liable to cause disability for many kinds of work for considerable periods of time. Also, the Commission has, during the last two years, found few cases of actual malingeringers among its beneficiaries. It has, however, had a considerable number of cases believed for a time to be malingeringers due to the limitations of available diagnostic facilities.

The hospital management was sincere, and was attempting to render adequate service. Hospitals are not to be criticised for failure to make proper diagnoses and recognize the true nature of injuries. Diagnosis requires experience, time, and interest in the case to a greater degree than can properly be expected under existing conditions in most hospitals. The only solution seemed to the Commission to be the treatment of cases in hospitals, but as patients of selected surgeons. The following case illustrates the difficulties of diagnosis even by physicians of considerable training. The condition overlooked was fracture of the vertebrae, a condition frequently not recognized.

Delayed Diagnosis Prevents Treatment

On December 5, 1917, F. G., a carpenter, aged 57 years, employed by the United States, on a vessel at Montreal, Canada, fell a distance of about twenty feet into the hold of the vessel and received various injuries. He was taken to a hospital in an unconscious condition.

The diagnosis was "laceration of scalp, fractured skull, injuries to back." Spinal puncture revealed blood in cerebrospinal fluid. He was unconscious for four weeks. Then he began to improve slowly and was gradually able to use his limbs. With the return of consciousness he was found to be irrational, acting like a child, and to have partial paralysis of the legs. February 5, 1918, he left the hospital. At home, while under the care of his family physician, he gradually recovered the use of his legs and his mental condition slowly improved, but he continued to complain much of the severe pains in his back. On July 27, 1918, arrangements were made to have him examined by a medical officer at Montreal whose report was as follows:

F. G., male, aged 57, carpenter in the employment of the United States Shipping Board, injured December 5, 1917.

Present General Condition.—Good except that he complains of pain in the lumbar region and walks rather slowly, with body slightly bent forward. No apparent mental defect. Skin and sclera clear; pupils normal and react to light; nystagmus and Romberg's sign absent. Patellar reflexes normal. Urine free, specific gravity, 1,020, color straw, no albumin or sugar. No tenderness or deformity of spine or back.

Character and Extent of the Injuries.—At the present time none, except that he walks rather slowly with body bent slightly forward, and he complains of a constant dull, aching pain in the lumbar region. The pains are more acute at times but are slowly improving. He has not been able to do any work since his discharge from the hospital, but he said if he were relieved of the pain in his back he would be able to resume his work. He is afflicted with left inguinal hernia of twenty-five years' duration.

Objective and Subjective Symptoms.—None, except the slow walk and lumbar pains as above described.

On October 29, 1918, the case was sent to another medical officer at Montreal for examination. He reported:

Since leaving the hospital the patient has been under the care of a private physician. Spends his time around the house, going out only to church or to the store. Says he can not walk more than a quarter of a mile without getting tired out. He appears to be a well nourished individual with flabby muscles, and emotional at times.

Mental Attitude.—Talks intelligently; appears to be oriented, but the friend who accompanied his wife and himself to the office, said that his mind was affected in that his memory was poor.

Physical Examination.—Muscular coordination good; reflexes normal. Knee jerks present. Eye reacts to light and accommodation. Movement of joints of upper and lower extremities, free. Movements of spine free; bending forward, backward, lateral, and rotation good.

Complains of pain when the spine from the eighth to the twelfth thoracic vertebrae are tapped lightly. Refers the pain to the loins. In rising from a chair his movements are slow, and he assists himself by catching hold of the arms of the chair. There is a large inguinal hernia present on the left side; a smaller one on the right. Does not know when they occurred, but thinks probably at the time of the accident.

He has a scar on the back of the head, irregular, not tender; has no explanation to offer for its presence, in fact, was not aware of it being there.

On the recommendation of the officer making the above report, the patient was referred to a consultant for mechano-therapy and hydrotherapy. The consultant reported:

I find no sign of any organic disease, muscular and skeletal systems being apparently normal. He has, however, a well marked "traumatic neurosis" similar in every respect to the so-called "railroad spine." In other words, the condition is purely functional, but as such is none the less serious so far as ultimate recovery is concerned. The effect of treatment in this man's case would be problematical, so much so that I could hardly recommend its being instituted. The only thing that might be tried would be of a suggestive nature and associated with moderately severe electrical applications. In the above findings I have had the assistance and corroboration of Dr. ——, neurologist.

In May, 1919, Doctor N., who had handled many cases in New York City for the Commission, having returned to Montreal, the case was referred to him. He reported:

After his return home from the hospital the patient gradually regained the use of his legs, and the condition of his mind slowly improved. He has never, however, regained his normal mentality, and today presents the picture of a man not far removed from insanity. His scalp shows scars dating from his fall. His gait is weak and uncertain, and as he walks he supports himself with his hands on any nearby chair or wall. He has to sit down to rest frequently. His arms, legs, and feet are good.



Fig. 2.—The picture at the left is an X-ray photograph of leg taken three months after the injury occurred, showing unsatisfactory position of fragments, due in a large measure to inexpert or careless treatment. At the right is another photograph of the same leg, giving an antero-posterior view of the fragments.

The pain in his back, moderate in severity, is present most of the time, and is probably due to sprain. There is some anteroposterior irregularity at the dorsolumbar junction, but the vertebral movements are very fair for a man of his age. His memory is poor; his response to questions hesitating. He will, in my opinion, never be able to work

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again at anything. I do not think that his mental condition is capable of being improved. Something may possibly be done to relieve the pain in his back, but a more accurate diagnosis will need to be made with the help of x-ray. His disability is, of course, total and in all probability permanent, depending practically entirely on his mental condition rather than on his back. Disability is irreparable cerebral injury.

On June 23, Dr. N., advised the Commission that the patient had appeared at his office a few days pre-

viously to learn whether anything could be done for his backache, that he had x-rayed him and found that at the time of the accident the patient had sustained a compression fracture of the eleventh and twelfth dorsal vertebrae, and that this was the cause of the persistent backache. A back brace was secured and gave the patient much relief.

The method adopted by the Commission to furnish proper medical and surgical service has been the designation in connection with each hospital of one or more competent, well trained surgeons of established reputation, and the requirement that every compensation case going to the hospital shall be placed under the immediate care of one of the designated surgeons. With this arrangement the hospital renders its bill for hospital care. The surgeon submits his bill for professional attention. This insures to the injured employee the personal and interested service of a competent physician, and gives to him the same close atten-

tion he would receive as a private patient of a reputable, competent practitioner. If the services of other specialists or consultants are required, the attending surgeon secures such services, submitting bills therefor.

When the Commission first began the designa-



Fig. 3.—X-ray photograph of femur taken six weeks after injury occurred, showing unsatisfactory position of fragments due to expert or careless treatment.

tion of physicians and hospitals as required by the law, the question arose as to what qualifications, if any, it should require before designating a physician. The idea existed at first that the Commission could not restrict itself to the designation of highly qualified and experienced men, surgeons particularly, most of the injury cases being surgical in nature, as it was supposed the charges for expert service would be exorbitant, or at least greater than the Commission would be justified in paying. It soon became apparent, however, that the Commission could not afford the services of any but the most competent men available in the locality. The handling of injury cases by physicians of insufficient training and experience resulted frequently in the making of permanent cripples, particularly in bone and joint injury cases, which might have been prevented by the services of competent orthopedic surgeons, and showed the fallacy and extravagance of securing the services of any but well trained and experienced surgeons.

After arriving at this conclusion and acting upon it, the Commission was happy and, in a measure surprised, to find that the bills presented by the well trained and experienced surgeons were in general no greater than the bills presented for treatment of similar cases by men of inadequate and insufficient training. In fact, the charges made by the most competent men have been on the whole the most reasonable, particularly so when the much better service rendered is considered. A permanent cripple is a charge against the Commission as long as he lives. Every employee restored to work, every cripple prevented, is an economy.

Fee Schedule Impracticable

The question arose as to whether the Commission should adopt a schedule of rates or charges that it would pay for medical and surgical service; in fact, the matter obtruded itself upon the attention of the Commission for everyone seemed to expect, as a matter of course, that a fee schedule would be adopted. However, one has not been adopted. It seemed that at best a fee schedule was an inaccurate and cumbersome thing by which to work, as probably the same service would seldom be rendered in any two cases, and it was service the Commission wanted, service that would put men back to work physically sound and that would prevent unnecessary cripples.

The plan adopted was to use as great care as possible in designating, under the provisions of the Act, only men with adequate training and considerable experience in surgery, of mature age, and of established reputation in their respective communities; and then to explain to those appointed that the purpose of the Commission was to secure service; that in bone or joint injuries the Commission expected x-ray examination and control; that where there appeared to be any reason therefor, neurologists, pathologists, or other specialists should be called in consultation; that the purpose of the Commission was to make the best possible restoration of the injured person; and that as regards charges the Commission merely expected that the charges would be reasonable for the service rendered.

The Commission has found that this arrangement was acceptable to and welcomed by the class of men they selected,—a class of men whose services it would have been impossible to obtain under the limitations of a fee schedule,—and this notwithstanding the fact that the fees actually charged have been within the limits of any reasonable fee schedule which might have been adopted. Should the Commission find one of its designated surgeons giving inadequate service or

making unreasonable charges, it has recourse to cancellation of his designation; but there have been exceedingly few instances in which this has been called for.

Hospitals Chosen by Surgeons

The hospitals are now usually designated on the recommendation of the designated surgeons. When a surgeon is designated, he is asked to indicate the hospital he would like to use for the injury cases requiring hospital treatment. A hospital schedule is then sent to the hospital and, when returned, the hospital is designated, if satisfactory.

An injured employee goes or is sent to the designated surgeon. If he is a hospital case, the surgeon sends him to the hospital. In serious injuries, the injured employee is usually taken direct to the hospital and the designated physician who is to take care of the case is notified by messenger or telephone.

The Commission has, in a measure, followed the policy that beneficiaries should be placed in the general ward of the hospital unless, in the opinion of the surgeon, the case is such that a private room is necessary. When necessary, special nurses are allowed. In fact, any service is allowed which is actually needed by the patient.

The Commission has found that its policy with regard to ward service has not been possible of uniform application. It has been found that in many hospitals the service given in the general ward is not the kind which the Commission would be justified in imposing upon its beneficiaries. Under such conditions the Commission allows and desires the use of private wards or, if these are not available, private rooms. The minimum of service which it feels justified in furnishing under the law is one in which there are clean beds in a clean ward, with adequate nursing and orderly attention, and suitable diet. When a beneficiary for his own convenience desires a private room, when ward service is available, he may secure a private room by paying the difference between the ward rate and the rate for the room.

The experience of the Commission may be summarized briefly as showing:

(1) In government hospitals and dispensaries the service rendered varies with the training and personality of the members of the staff's.

(2) In non-government hospitals good medical and surgical service is usually not obtained unless the cases are put in charge of selected physicians or surgeons paid by the Commission.

(3) Paying the "doctor's" bills for an injured employee is not synonymous with furnishing reasonable medical and surgical service.

(4) Reasonable and adequate medical and surgical service can be obtained only from conscientious physicians and surgeons with good training and experience.

ILLINOIS REPORT ON HEALTH INSURANCE

The Illinois Health Insurance Commission, a legislative body appointed in 1917 to study and report on the problem of sickness, the incidence of sickness, and health insurance, estimates that probably 20 per cent of all wage earners will suffer a disabling illness of more than seven days in a year, or as the result of accidents arising from nonindustrial causes. Sickness was found to be the cause or an accompanying condition in from one third to one-half of the cases in which charitable aid was sought. In about 20 or 25 per cent of cases in which sickness is a cause or condition of dependency, tuberculosis, and other chronic conditions were found to exist. The majority report states that, after analysis of the results achieved by compulsory health insurance systems abroad, it is believed that compulsory health insurance is not an important factor in the prevention of disease or in the preservation of public health. A minority report was presented by Dr. Alice Hamilton and Dr. John E. Ransom in which it is contended that health insurance will bring about a more equitable distribution of the costs of sickness.

FACTORY INSPECTOR OF GREAT BRITAIN LECTURES AT HARVARD

Harvard University announces that Dr. Thomas M. Legge, chief medical inspector of factories in Great Britain, has been invited to give a course of Lowell lectures and the Cutter lectures in preventive medicine for the coming year. These lectures will be given under the auspices of the School of Public Health of Harvard University and the Massachusetts Institute of Technology, and the division of Industrial Hygiene.

Dr. Legge will lecture in Boston on November 18 and ensuing dates upon the following subjects: "Twenty Years' Experience of the Notification of Industrial Disease," "Twelve Years' Experience of Workmen's Compensation Act and Industrial Diseases," "Medical Supervision in Factories," "Industrial Poisons and Their Prevention," "Anthrax," "Fumes and Gases," "Industrial Fatigue," "Industry as a Subject for Art," "Manufacture Under the Mediaeval Trade Guilds." The completed schedule of lectures will be issued on October 20.

"All voluntary and public effort to promote safety, sanitation, and hygiene, to prevent accident, to destroy infection and contagion, whether it be related to proper water supply, to sewage disposal, to pure food to proper housing, ventilation, lighting, and recreation, to medical supervision, or to any other form of social control in the interest of safety and health, may very properly be viewed in the light of service rendered industry by the community for which the community has a right to expect service of like kind on the part of industry. Instead of proper standards of working conditions in industry being viewed as a concession by capital to labor, they should be regarded as at least the necessary complement of those measures of public safety and public health which are primarily for the benefit of the community as a whole, and which are also of direct and immediate benefit to capital and management.—W. I. Mackenzie King, C.M.G., LL.B., Ph.D.,—"Industry and Humanity."



USES OF MOTION PICTURES IN INDUSTRIAL DISEASES

BY LESLIE WILLIS SPRAGUE, DIRECTOR, INDUSTRIAL SERVICE SECTION, COMMUNITY MOTION PICTURE BUREAU, NEW YORK

THIE motion picture, under wise and careful management, readily lends itself as an aid to the progressive industrial physician. It is capable both of general utility and special services.

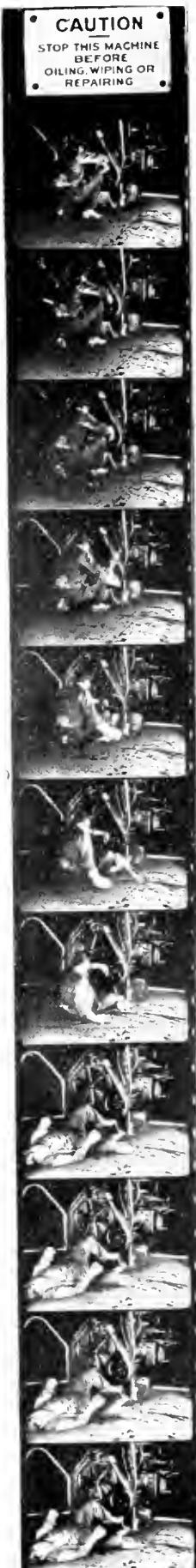
The company physician, responsible for the families of employees as well as employees themselves, is particularly in need of effective educational agencies. He cannot hope personally to disseminate the knowledge necessary to enlighten the public and the private opinion of his community to a degree necessary to safeguard the families under his care from contagion and epidemic. Nor can the usual nursing staff at the disposal of the industrial physician hope more than to follow in the wake of disease; they cannot anticipate and meet in advance the diseases which ravish the homes of the workers. But motion pictures now available, or easily to be produced, are capable of carrying the doctor's wisdom and the nurses' sure methods of precaution into every home of the industrial community.

Three Urgent Necessities

Three things are imperative. To cut down the inroads which diseases peculiar to particular industries make in the ranks of the workers, the industrial management must discover and be quick to install all necessary devices, enforce needful regulations, and comply with the laws of health as science discovers them. The industrial physician must, with the aid of health devices and wise care, look after whatever percentage of the employees the best regulations fail to protect; and the workers must be brought to a willing and effective cooperation in making the health rules and the physician's care as potent as possible, both in the cure and prevention of industrial diseases. In all three of these necessary interests motion pictures should have an effective part.

The Industrial Manager

Managers need education in the economics of industrial health. The conscience of many industrial managers, responsible for the private welfare of employees and the general welfare of the community, still remains in need of quickening. Not all who are responsible for the conduct of industry are ready to hear and adopt the recommendations of their industrial



*The third of a series of three illustrated articles by Leslie Willis Sprague describing the use of the motion picture in promoting interest in public health: (1) "Motion Pictures in Public Health"; (2) "Motion Pictures in Industrial Medicine"; (3) "Motion Pictures and Industrial Diseases." The first of the series appeared in the August issue.



In a badly ventilated and dusty pottery plant the doctor finds the workers easy prey to tuberculosis. The deleterious effects of dust may usually be prevented by the use of ducts, hoods, and fans.

physicians, nor, indeed, to employ health experts to care for their employees. A field is here open for some national agency, at least for some general association representing each of the leading industries, to provide (producing if necessary) films which will bring home to the manager of particular industries the pertinent needs which they must specifically meet in order to promote their own, their employees', and the public welfare.

The breathing of emery dust, for example, lessens the usefulness and shortens the lives of many grinders. It is questionable how large a percentage of emery wheels in the United States are equipped with devices for bearing away the lung-destroying dust. All employers who are not awake to the necessity of improving upon any such device until its work shall be 100 per cent efficient, are in need of a motion picture program to bring graphically to their attention not only the need, but the surest method of its fulfilment.

Pictures for Industrial Physicians

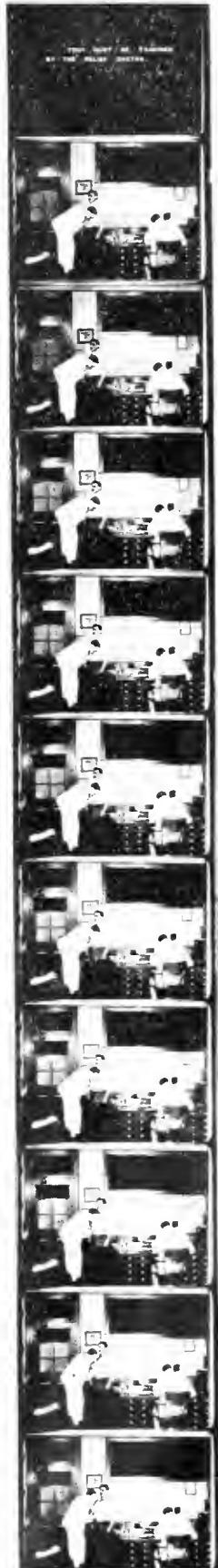
Many earnest industrial physicians who were obliged to cope a year ago with influenza found various means of at least checking the dread contagious disease. The result of such successful experience should be put before all employers in a way to ensure the immediate installation of the best program of defense, should another epidemic more devastating than war make itself known in our midst. As yet no adequate presentation of this subject has been done in motion pictures. Here is a responsibility for the Rockefeller Institute, the United States Chamber of Commerce, or possibly for the Federal Government.

Physicians in charge of industrial health, and nurses who assist them, are another audience for motion pictures which deal with the means of protecting the lives of the workers. Actually to see upon the screen methods introduced and results accomplished by successful experts in dealing with epidemics would be more informative than convention reports or anything but the actual visitation of the fortunate plant while the experiment was being tried. Motion pictures dealing with the prevention of typhoid, infantile paralysis, smallpox, and tuberculosis have a proper place in the meetings of medical associations, especially meetings particularly concerned with industrial health.

Health Education for the Workers

The largest and most needy group who should see motion pictures dealing with industrial diseases, their prevention and cure, is naturally the workers, whose attitude toward all health regulations and contagion-prevention is the most important fact to be reckoned with and is the frequent cause of partial or total failure of the wisest plans.

Doctors are not always trusted by the laity, and industrial physicians, partly owing to the paternal-



The presence of a plant physician conveniently accessible to the men encourages early consultation in disease or sickness.

istic nature of their office, are frequently far from the confidence of those whom they seek to serve. Their councils are often questioned, their devices scorned, and their orders disregarded. It is here that the impersonal motion picture comes to the aid of the industrial physician.

To put upon the screen pictures showing health measures adopted in other plants, perhaps in other countries, and to present the successes of such measures in safeguarding the lives of other workers, would be to create a demand on the part of the workers for such protection. Wise is the industrial physician or employment manager who, heeding Emerson's dictum regarding education, "never answer a child's question until he asks it," proceeds to the creation of a demand on the part of the workers for any new departure before attempting to supply the thing which he knows to be beneficial. Motion pictures not only help to create a reasoned demand for health devices, but, wisely used, they contribute to the group opinion which is necessary to the successful working of every regulation and device introduced in an industry.

Pictures to Be Produced

There is serious need of the cooperation of leaders in industrial health with the producers of motion pictures in order that a more adequate treatment may be given to many important and greatly neglected subjects. There is still need of scientific cooperation in the production of motion pictures dealing with such subjects as a reasonable diet, the necessity of adequate sleep, fresh air in sleeping rooms for other reasons than tuberculosis prevention, infection, eye strain, various occupational diseases, not to mention other subjects. To be largely useful, these subjects should be produced not for advertising, but only for scientific and public welfare purposes.

Available Material

There is no need, however, to wait for new production in order to use motion pictures effectively in stamping out epidemics and in promoting a right attitude of mind on the part of workers toward programs instituted by health physicians. Enough film material is now at hand to ensure the success of motion pictures in meeting the problems of the industrial health expert.

When employers of labor realize, as they are realizing increasingly, the importance of motion pictures in the industrial plant as a means of stabilizing labor conditions, cutting down the turnover, and promoting Americanization, as well as wholesome and needed recreation, and when, realizing this, they install motion pictures prop-

erly programmed for producing the desired results, then the health officers in industry will not be slow to cooperate in planning motion picture programs to further the interests they have in hand and at heart.

PENNSYLVANIA COMMISSION SUBMITS HEALTH INSURANCE REPORT

Large numbers of the working population of the state of Pennsylvania endure periods of illness without proper medical attendance, and the hospitals of the state provide an average number of beds only a little more than one-half the recognized minimum of five beds per thousand of population.

Thus the facts are presented by the Health Insurance Commission of Pennsylvania in the report submitted early in September pursuant to instructions voted by the legislature in 1917, when the Commission was formed.

There are constantly ill in the state of Pennsylvania more than 385,000 employees, of whom approximately 140,000 are suffering from severe illness and 245,000 from less serious illness.

The commission set out to do its work with an appropriation of only \$5,000 available. Due to the enforced limitation imposed by the sum voted by the legislature, the commission made no survey or investigation other than a study of the data which others have compiled. The figures of the draft are taken as an evidence of the extent of illness and disability, and the registration of deaths, births, and communicable diseases furnishes convincing testimony of the unnecessary or preventable sickness that exists.

Pennsylvania had the highest percentage of any state in the number of men rejected for military service. The proportion of those rejected for physical defects was 46.67 per cent. The average for the entire country was much lower—29.11 per cent.

From the data gathered by other agencies the commission concludes that the average loss of working time for all employees exceeds six days per year. The death rates in Pennsylvania are higher than the average also, and the infant death rate in Philadelphia, in 1917, was higher than that of New York City, Brooklyn, Boston, or Chicago. The state as a whole had an infant death rate in 1916 of 114 per thousand as compared with 101 per thousand in the registration area.

The loss to employees in wages missed is estimated at \$33,000,000 per year, with a corresponding loss to employers in curtailed production and labor turnover.

The lowest paid wage groups suffer the most and have the least opportunity to procure adequate medical care. Approximately one-fourth of those disabled by sickness actually never receive medical care. Insurance protection against sickness either by employees' benefit organizations, fraternal societies, or other forms of benefit organizations, extends to only 30 per cent of the workers.

The commission places the responsibility for sickness equally upon each of three groups—the industry, the community, and the individual. Some form of health program is advised which will guarantee medical service to employees and their families. No definite plan of health insurance is proposed, but the commission recommends that a new appropriation be authorized and a commission appointed to continue the investigation and to study the existing plans of health insurance in this country and abroad with a view to formulating definite measures.

HEALTH SERVICE THROUGH EMPLOYEES' MUTUAL BENEFIT ASSOCIATION

BY BERT HALL, SECRETARY, E.M.B.A., THE MILWAUKEE ELECTRIC RAILWAY AND LIGHT COMPANY, MILWAUKEE, WIS.

THOSE who rely on Government statistics to prove a given point, find on investigation that they have chosen a weak reed on which to lean, as the figures of one Governmental Department may vary a few millions from the figures accumulated by another department on the same subject. This is particularly true with statistics in regard to health and sickness. Weak as Government statistics are on practically all subjects, they are particularly weak in regard to the subject under discussion.

However, if one takes the United States census figures and compares them with the figures accumulated by certain insurance organizations, labor organizations and other agencies, one is forced to the conclusion that the average wage earner in the United States loses approximately nine days per year on account of sickness. Such statistics as we have indicate that there are approximately thirty-five million wage earners in America and if each one of these loses nine days per year the economic loss is something enormous. This loss would amount to 315,000,000 work days and at wages which now probably average not far from \$3.50 per day gives the grand total of \$1,102,500,000.

Reduce the Economic Loss

Any effort on the part of the medical profession or any other organized effort which would reduce this loss even 10 per cent would result in a saving of vast suffering, and would permit wage earners to increase their yearly earnings by more than \$100,000,000.

We propose to show in this article that it is possible to reduce this loss by fully 33½ per cent, entailing a money benefit to the wage earners of America of at least \$30,000,000 per year.

If we are to believe the arguments advanced by the advocates of compulsory health insurance, legislation compelling insurance is needed in most

In a group of more than four thousand employees residing in a territory that extends over a large portion of southeastern Wisconsin, the loss of time from sickness has been reduced approximately 50 per cent through the activities of an employees' mutual benefit association that regards the conservation of health and the prevention of sickness as a duty of greater importance than merely the payment of sick benefits. For the purpose of giving prompt medical attention to members and their families the territory is divided into districts and an association physician assigned to each district. Prompt medical attendance lessens the amount of sick benefits that must be expended.

of the states to bring about this very much desired result. To the writer this plan of attempting to improve health conditions through compulsory health insurance laws is un-American and would not produce the results claimed for it. The best statistics obtainable from England and Germany, where such laws have been enacted, and especially from Germany where it has been tried out for nearly forty years, in-

dicate that the time lost on account of illness has steadily increased and the duration of each case of sickness has steadily increased. This would indicate either that the doctors who go upon the "Panels," as they are called, for ministering to insured persons are not the best physicians, or it may indicate that there is a vast amount of malingering; whichever one of these investigations proves to be correct, they are equally bad.

Sick Benefits vs. Health Promotion

The author believes that there is a better method of reducing the time lost than through a compulsory health insurance law, with all of the cumbersome political machinery which must be put in motion before any results are obtainable under such a system.

When one speaks of a mutual benefit association, one is very apt to think of an association organized principally and solely for the purpose of administering a fund from which benefits shall be paid to men suffering from illness. An investigation of mutual benefit associations would probably show that 99 per cent are content with this one function and that the directors of these organizations have never seen the wonderful opportunities placed in their hands for improving health conditions and reducing the time lost on account of illness.

The object in what follows is to give as clearly as possible some idea of a mutual benefit association which is organized and working along these

health conservation lines, and which has succeeded in reducing the time lost on account of sickness among its members approximately 50 per cent.

As this organization has a membership of more than four thousand, and extends over a large portion of the southeastern part of the state of Wisconsin, the group under consideration is large enough to establish some fairly definite conclusions.

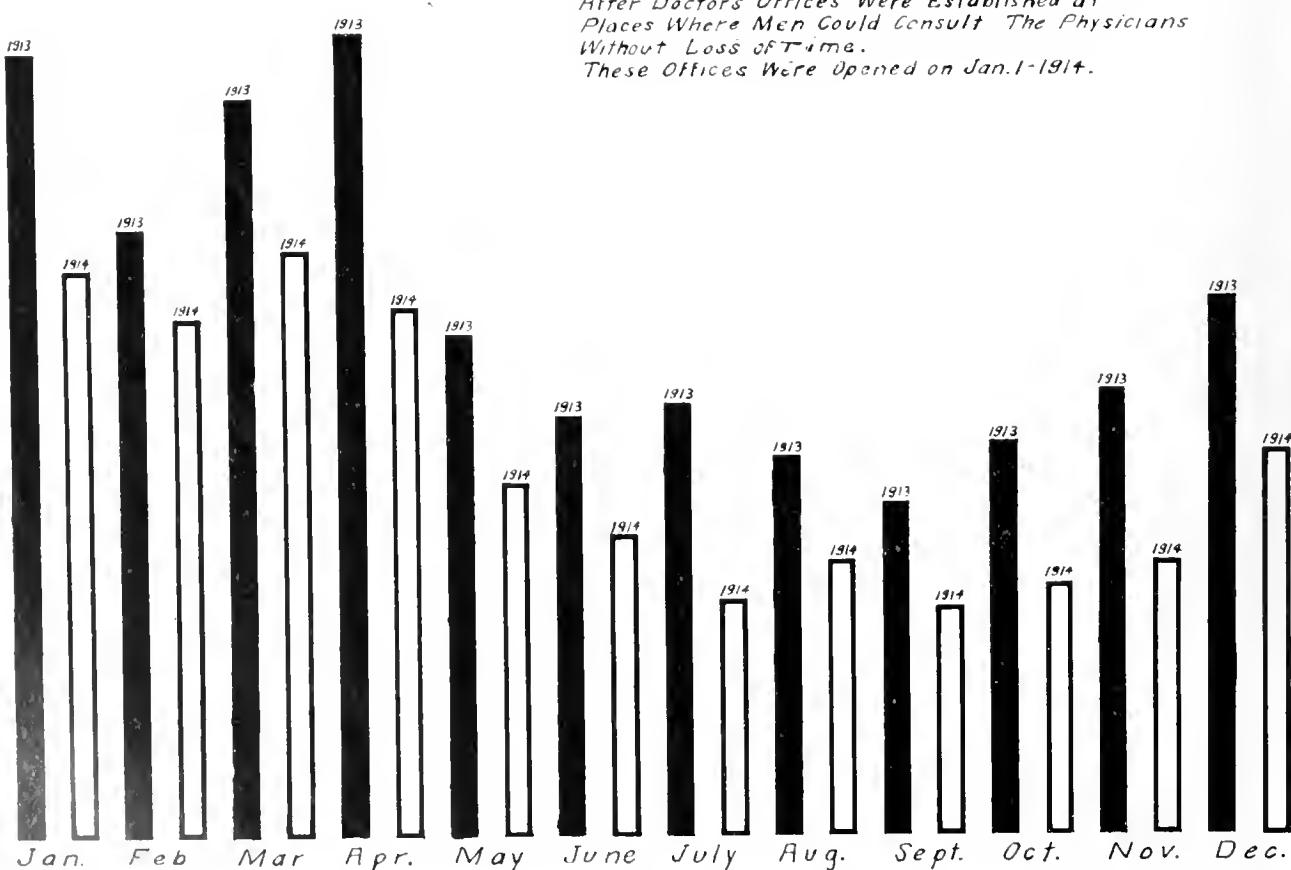
Association of Employees Formed

The Employees' Mutual Benefit Association is made up of approximately four thousand members, employees of the Milwaukee Electric Railway & Light Company, the Wisconsin Gas & Electric Company, the Wells Power Company, and a number of other smaller concerns engaged in furnishing street-car service and electric and gas service in the cities of Milwaukee, Kenosha, Racine, Burlington, Watertown, Oconomowoc, Waukesha, and a large number of other smaller towns and villages in the southeastern part of the state. Within the membership there are approximately 170 different trades, callings, and professions, covering practically the entire industrial workers' field.

On March 1, 1912, the employees of these com-

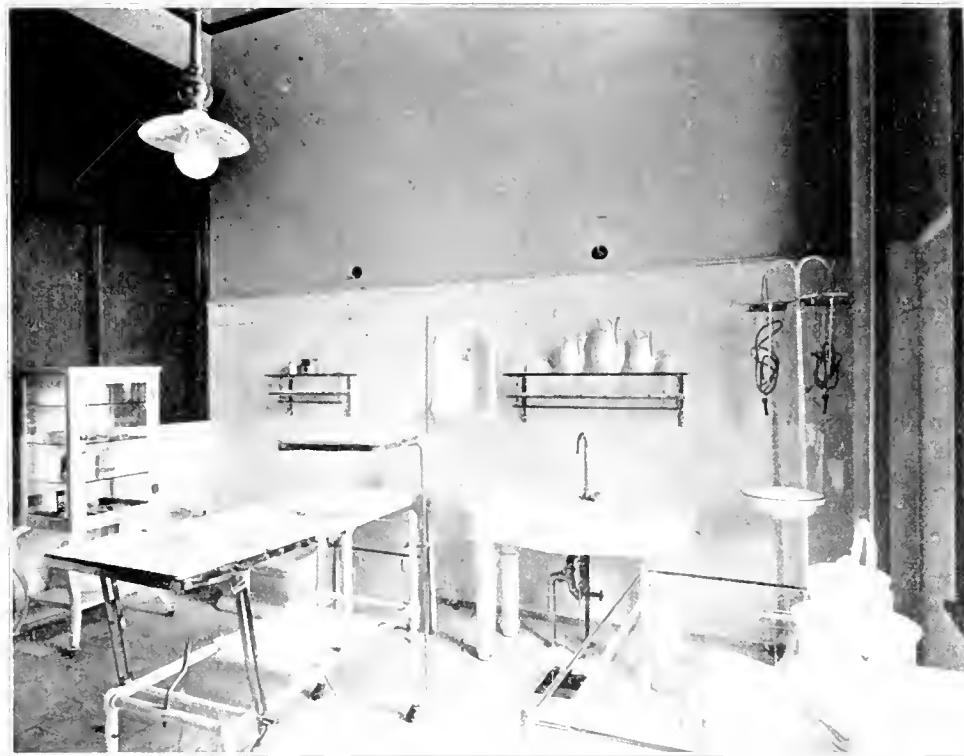
panies organized a Mutual Benefit Association, acting under the inspiration and guidance of the management of the companies. The business affairs of the Association are conducted by a Board of Directors, jointly elected by the employees and appointed by the company. The employee directors number thirteen and those appointed by the company number eleven, giving the employees a working majority on the Board of Directors. At the organization meeting, Dr. Charles H. Lemon, one of the most eminent surgeons of Wisconsin, was appointed as medical director of the Association, and the wonderful results achieved during the past eight years are largely due to the skill with which he has administered the medical affairs of the Association.

For the purpose of giving prompt medical attention the territory covered by the companies is divided into districts and a physician of the Association is in charge of each district having sufficient members to warrant the appointment of a physician. Members residing in districts where there are not enough members to warrant the appointment of a regular Association physician, may call their family physician and the physician's bills are paid out of the funds of the Association. The regular district physicians of



the Association are paid a fixed fee for taking care of members of the Association; in the case of married members, there is an additional fee for taking care of the wife, and still another additional fee is allowed for taking care of the children if there are children in the family.

physician before the physicians would give them attention. This was much more satisfactory, but a careful survey of the operation for a period of twelve months showed that the average man would not call the Association physician until the illness with which he was suffering had run for



Operating room at the office of the medical director where minor operations are cared for. All major operations and many of the more serious minor operations are taken to a hospital.

Members of the Association are taken care of both medically and surgically, medical and surgical attention comprising all ordinary medical and surgical care, including obstetrics, but not including the services of specialists.

Extent of Service Rendered

From the very beginning the object of this Association has been to conserve the health of its members by giving prompt medical attention. At first an attempt was made to send the doctors to the home of every employee who reported himself away from work on account of sickness. This did not prove satisfactory either to the doctors or to the men, as a number of the men belong to lodges which furnish medical service and the Association physician would arrive at a man's house only to find that the doctor from the lodge had already called, or discover that the man had taken a dose of physic and was staying home in consequence and did not need the service of a physician.

The rule was then established that men who reported themselves as being sick would be required to call for the services of the Association

several days. It was thereupon decided that an improvement could be made by opening doctors' offices at all places where men were employed, so that men could be sent to the doctors' office immediately, and without loss of time, as soon as the first symptoms of illness appeared.

Prompt Care Saves Time Loss

It became at once the duty of foremen and superintendents to send their men to the doctor's office upon the first appearance of illness. At the end of twelve months of operation under this plan remarkable results had been achieved. It was found by comparing the figures of 1913 with the figures of 1914 that a reduction of 35.1 per cent in the time lost on account of sickness had taken place. In other words, the average time lost per man had been reduced from a fraction over 8 days per year to a fraction over 5 days per year. As time has gone on the system has been improved and men have learned the importance of calling a doctor on the first appearance of symptoms of illness, this has been still further reduced until the average days lost per man per year is 4.24. It thus appears that this system of prompt atten-

tion has resulted in the whole organization in a saving of approximately 20,000 days per year that were formerly lost on account of illness.

It is a fixed rule of employment that every man who is confined to his home by illness must



A trainmen's club room. Wholesome games occupy the leisure hours of these men.

report to his superior the fact of his illness. When he does report his illness, the question is immediately asked, "Do you wish to have the Association physician sent to you?" If the reply is in the affirmative, and it usually is, the physician is at once notified to call at the man's residence. This plan insures prompt attention to those who are confined to the house by illness.

Conservation of Health Saves Funds

The conservation of the health of its members has resulted in a conservation of the funds of the Association. By reducing the time lost on account of sickness, there was a corresponding reduction in sick benefit; the surplus of the Association grew rapidly and now amounts to a substantial figure from the income of which addi-



Patients waiting to see Association physician.

tional benefits have been extended to the members of the Association.

The members of the Association, at present, have the following benefits: \$1.00 per day sick benefits for the first one hundred days, \$0.50 per day for the second one hundred days of illness, \$150 being the maximum that any member can receive within any twelve months. There is a \$300 death benefit. The Association cares for the wives of all married men and for their children under eighteen years of age for all ordinary medical attention and all surgery excepting special surgery. The Association also provides three nurses to give attention to those who are seriously ill and in need of the services of a nurse.

It has been found from our experience that this care of the wives and children of employees of the company and members of the Association has a beneficial influence on the health of the men themselves, due, no doubt, to the fact that the wives, being kept in better health, are better able



The Employees' Mutual Benefit Association Fair, 1918. Vegetables and fruits grown and exhibited by members.

to attend to the household duties and keep the home in such excellent condition that there is a direct result in the improved health of their husbands. The peace of mind that comes to the laboring man who knows that, in case of an accident or serious sickness, his loved ones will be promptly and efficiently cared for certainly has a tendency to improve the mental condition of the worker and indirectly to affect his general health beneficially.

Loans and Pensions Provided

This Association has proved by its experience of eight years that it pays to assist men in all ways which will tend to reduce to a minimum the nervous and mental frictions of life. It has a system by which men are relieved from financial worries by loans of small amounts which will tide

them over a financial emergency, and has very effectively prevented all garnishment actions being brought against its members. This latter result has been effected by securing the cooperation of collection agencies, law firms and houses selling goods on the installment plan.

Another important feature of the Association is its pension system, which provides a minimum pension of \$240 per year for men who have been in the service of the employing company for a period of fifteen years and who have reached the

TABLE I
CLASSIFICATION OF SICKNESS DISABILITY CASES BY NATURE OF ILLNESS
AND MEDICAL SERVICE—DEPENDENT WIVES

Nature of Disability	Cases	Visits by nurse	Major operations	Minor operations	Physicians' calls	Total value medical and surgical service
Abscess	25	2		3	93	\$112.00
Addison's Disease	1	8				.....
Anemia	11				26	26.00
Appendicitis	9		5		48	648.00
Bronchial Asthma	1				1	1.00
Bronchitis	70				264	264.00
Cervix Uteri	6		6		10	170.00
Carbuncle	2				9	9.00
Adenitis	3					7.00
Carcinoma	4				8	8.00
Choleocele	7			1	30	150.00
Cholelithiasis	8			3	24	564.00
Cold	70				163	163.00
Colitis	2				4	4.00
Constipation	13				20	20.00
Cystocele	1				2	27.00
Cystic Ovary	1				2	7.00
Cystitis	5				16	16.00
Diarrhoea	4				4	4.00
Diphtheria	2				20	20.00
Dysmenorrhea	14				18	18.00
Endocarditis	1			1	1	1.00
Endometritis	10		2	1	46	416.00
Epilepsy	2				8	8.00
Eye Disease	6				7	7.00
Fibroma	1				3	3.00
Frontal Sinusitis	1				3	3.00
Gastric Ulcer	9				21	21.00
Gastritis	55				146	146.00
Gastro-Enteritis	18				28	28.00
Goiter	7		2		19	459.00
Gripe	295				1,548	1,548.00
Headache	17				22	22.00
Hemorrhoids	5		1		6	81.00
Hernia	2				2	2.00
Hysteria	1				1	1.00
Impacted Cerumen	1				1	1.00
Laryngitis	1				1	1.00
Lipoma	1				1	1.00
Lumbago	13				27	27.00
Mestitis	3		2		13	203.00
Measles	7				19	19.00
Menopause	9				19	19.00
Miscarriage	17				67	67.00
Miscellaneous	173	7			298	298.00
Mycarditis	4				29	29.00
Nephritis	8				35	35.00
Neuralkia	10				21	21.00
Neurasthenia	34				60	60.00
Neuritis	6				2	2.00
Obstruction of Bowels	1				2	2.00
Otitis Media	2				2	2.00
Ovaritis	5		2		28	328.00
Obesity	1				3	3.00
Parotitis	1				1	1.00
Perineum (Laceration)	6				10	10.00
Perichondritis	4	1			4	4.00
Pharyngitis	9				16	16.00
Pleurisy	11				34	34.00
Pneumonia	9			2	67	67.00
Pregnancy	115	69	4		217	217.00
Prolapsus Uteri	7		4		13	723.00
Pyosalpinx	1				2	2.00
Rheumatism—Articular	10				41	41.00
Rheumatism—Muscular	4				19	10.00
Salpingitis	6		1		13	133.00
Scarlet Fever	2				18	18.00
Sciatica	2				7	7.00
Skin Diseases	15				25	25.00
Tonsils and Adenoids	4			4	7	107.00
Tonsilitis	30			6	84	153.00
Tuberculosis—Pulmonary	4				10	10.00
Ulcer of Leg	7				93	93.00
Vaccination	1				2	2.00
Varicose Veins	4				13	13.00
Total	1,237	93	29	16	3,945	\$8,388.00

age of sixty, or who have become totally disabled before reaching the age of sixty.

There can be no doubt about the mental security which a man feels as old age approaches, if he knows that a substantial pension will be paid him after his working days are over.

The good work performed by the Employees'

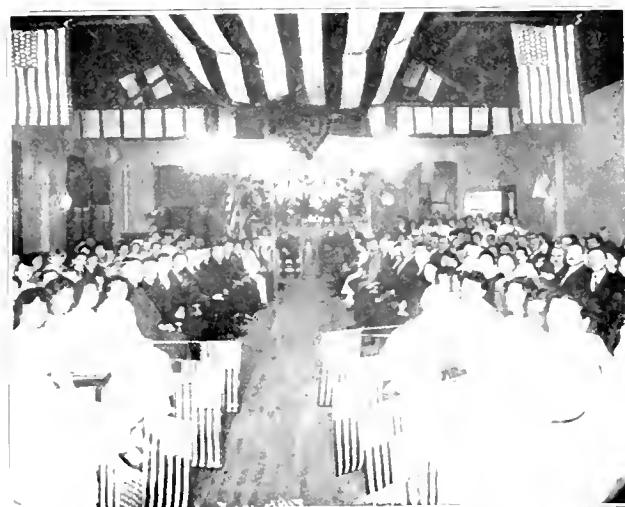


This hall is dedicated to the use of members of the Employees' Mutual Benefit Association for indoor games, dances, and entertainments.

Mutual Benefit Association among the families of its members has caused a large group of the wives of employees to organize what is known as the "Women's Auxiliary" of the Employees' Mutual Benefit Association, which organization attends to the matter of sending flowers to those who are confined to the hospital or who are suffering from prolonged illness in their homes.

Welfare and Recreation

In addition they look after the household cares and the children of the wives of members who must be removed to hospitals for operations, and



Dedication of Oakland Station Club Rooms in 1917.

perform many other neighborly acts which make them very useful in the organization, taking away from the patient every worry that can be removed by their cooperation, and making the conditions ideal for the recovery of the patient.

The Women's Auxiliary has taken a very active part in all of the social affairs such as dances, entertainments, card parties, and similar social affairs held during the winter season in the audi-



Office of one of the association physicians at one of the car stations.

torium of the Public Service Building, the company's office building, and at the club rooms at the various car stations.

Another feature of the work which undoubtedly has a bearing upon the general health of its members is the general welfare work performed by the secretary of the Association. Members of the Association are at liberty to lay before the secretary any of the serious problems which confront them, and which tend to make them nervous or worried and detract from their general physical welfare. That the members are taking advantage of this opportunity and that it is an element in the general health conservation plans of the Association, is evidenced by the fact that approximately three hundred individuals call on the secretary during each month of the year. During the year 1918 there were 3,511 calls made at the secretary's office and the secretary made a total of 3,621 calls outside of his office in helping members to straighten out their problems.

The employing company owns several large tracts of land in the city and suburbs, and arrangements have been made with the company through the Association for each member who wishes to use a small tract of this land for garden

purposes. A large number of its members have received the healthful recreation which comes from the cultivation of a garden and have helped to reduce the cost of living by the raising of vegetables.

Each year, at the close of the gardening season, a fair is held in the auditorium of the Public Service Building, where the fruits and vegetables raised are displayed, and where those who are raising chickens, Belgian hares, cavies, or other live stock are at liberty to exhibit same. Suitable prizes are offered.

After pointing out many benefits which this Association gives to its members, one is tempted to explain also how this work has reacted upon the members of the Association in establishing a

TABLE II
CLASSIFICATION OF SICKNESS DISABILITY CASES BY NATURE OF ILLNESS
AND MEDICAL SERVICE—DEPENDENT CHILDREN

Nature of Disability	Cases	Visits by nurse	Major operations	Minor operations	Physicians' calls	Total value medical and surgical service
Abscess	29			4	69	\$90.00
Adenitis	6				6	6.00
Addison's Disease	2				4	4.00
Appendicitis	21		8		44	1,004.00
Anemia	22				29	29.00
Bronchial Asthma	3				12	12.00
Bronchitis	216				384	384.00
Carbuncle	3				14	14.00
Carcinoma	1				1	1.00
Cholecystitis	4				9	9.00
Constipation	26			16	53	453.00
Cold	151				325	325.00
Colic	4				12	12.00
Colitis	3				11	11.00
Constipation	7				10	10.00
Cystitis	2				2	2.00
Diarrhea	14				19	19.00
Diphtheria	4				30	30.00
Dysmenorrhea	1				2	2.00
Endocarditis	2				3	3.00
Epistaxis	3				3	3.00
Eye Disease	16				37	37.00
Frontal Sinusitis	2				3	3.00
Gastritis	35				65	65.00
Gastro-Enteritis	20				29	29.00
Goiter	4				5	5.00
Grippe	319				1,686	1,686.00
Hay Fever	1				1	1.00
Headache	6			2	10	10.00
Hernia	7		2		18	23.00
Hysteria	2				12	12.00
Indigestion	83				166	166.00
Impacted Cerumen	4				7	7.00
Laryngitis	2				2	2.00
Lumhago	2				4	4.00
Mastoiditis	1				1	1.00
Measles	113				405	405.00
Myocarditis	1				5	5.00
Neurasthenia	187	3			302	302.00
Nephritis	2				3	3.00
Neuralgia	3				8	8.00
Neura-thenia	2				11	11.00
Neuritis	12				3	3.00
Orethritis	1				2	2.00
Otitis Media	17				25	25.00
Ovaritis	1				1	1.00
Palsy	2				26	26.00
Paralysis	2				43	43.00
Parotitis	1.7				1	1.00
Periostitis	1				4	4.00
Pharyngitis	4				1	4.00
Pleurisy	3			1	20	45.00
Pneumonia	16				89	89.00
Prostatitis	1				5	5.00
Pyorrhea	2				4	4.00
Rheumatism—Muscular	22				27	27.00
Scarlet Fever	48				127	127.00
Skin Diseases	5				105	105.00
Tonsilitis	98	1		9	192	417.00
Tonsils and Adenoids	30			22	47	571.00
Typhoid Fever	3				133	133.00
Urinalysis	2				2	2.00
Urticaria	4				8	8.00
Vaccination	3				19	19.00
Whooping Cough	41				108	108.00
Total	1,659		4	10	52	4,813 \$7,188.00

closer and a more mutual relationship between employer and employee but, as Kipling says, "That is another story," and has no place in an article of this kind. The work being done by the Association is work that could be taken up by any corporation with a management broad enough in its views to see how important this work is. It throws around the workers of this organization

every protection that is possible for human ingenuity to devise in the way of health protection, and has established a relationship between the employing company and its men that cannot be duplicated in any similar organization in America. It is constantly proving its worth to the workers, to the owners, and to the general public whom it serves.

CARBON MONOXID POISONING—THE TOXICOLOGY, SYMPTOMATOLOGY, AND TREATMENT

BY R. P. ALBAUGH, M.D., CLEVELAND, OHIO, FORMERLY DIRECTOR DIVISION OF INDUSTRIAL HYGIENE, STATE DEPARTMENT OF HEALTH

CARBON monoxid is one of the most frequent causes of industrial poisoning. It is extremely toxic, as little as 0.5 part per 1,000 in the atmosphere breathed having a poisonous effect, while 2 to 3 parts per 1,000 can be dangerous to life. It occurs chiefly as the result of incomplete combustion of carbonaceous material, and poisonous effects have been reported from a great variety of industries.

Haldane was responsible for the widely accepted theory that the gas was toxic by virtue of its power to unite itself with the hemoglobin, replacing the oxygen and forming a stable compound which he termed carboxyhemoglobin. This theory has apparently been disproved by Henderson who, as a result of experiments, concluded that the gas is physiologically harmless except in its affinity for hemoglobin, and that it does not form a permanent compound with hemoglobin, but is rapidly separated from it in the presence of pure air or oxygen.

Symptoms.—There is apparently some controversy also as regards the occurrence of chronic carbon monoxid poisoning. Hamilton states that poisoning is chiefly chronic, the acute type being comparatively rare. Chronic poisoning is at least quite prevalent.

In acute cases, if a large quantity of the gas is inhaled, the affected person immediately falls and succumbs after breathing a few times. In less acute cases there is dizziness, headache, "weakness of the knees," giddiness, palpitation, and shortness of breath, followed by drowsiness and unconsciousness. The lips are usually blue or bright red in color, and there may be red blotches on the skin over the entire body. If such cases are withdrawn from the poisonous atmosphere immediately, they may recover. Not infrequently, death occurs considerable time later from the symptoms described.

Chronic carbon monoxid poisoning sets in usually with symptoms similar to those in the mildly acute cases. Such cases usually become irritable and neurasthenic and complain of headache, anorexia, loss of weight, backache, vertigo and gastro-intestinal disorders. Apfelbach states that there is usually a polycythemia, the red cell count varying from 5 to 10 millions.

Complications and Sequelae.—The after effects of poisoning are of importance because of their severity and the frequency with which they occur. Broncho-pneumonia, skin affections, and nervous and mental disturbances are those frequently encountered. Many cases of mental disturbance resulting from carbon monoxid poisoning, occurring under rather peculiar circumstances, have been reported. Some of these cases apparently recover, while others have been under treatment for years with no apparent improvement.

Treatment and Prevention.—All cases of carbon monoxid poisoning should have the benefit of fresh air at once. Oxygen inhalation for a brief period is of value; otherwise, the treatment is symptomatic.

Prevention depends upon the elimination, whenever possible, of sources of the gas, and the protection of those necessarily exposed to the gas by helmets or other means. When there is doubt regarding contamination of the air, analysis of the air should be resorted to. When it is considered that 1 part of gas per 2,000 parts of air is poisonous, the necessity of altogether preventing even slight contamination of the air is readily apparent.

Keep On!

Keep on looking for the bright blue skies,
Keep on hoping that the sun will rise,
Keep on smiling though the whole world sighs,
And you'll get there in the morning.

—“*The Bambino.*”

INDUSTRIAL PHYSICIANS AND SURGEONS HOLD CONFERENCE

The Ninth Conference of Industrial Physicians and Surgeons with the Division of Industrial Hygiene and Engineering of the Department of Labor and Industry of Pennsylvania, was held at Harrisburg, Monday, September 22, 1919. The meeting was quite largely attended by industrial physicians and by members of the Pennsylvania Medical Society, who convened on the following day for the annual meeting of the Society. The meeting was presided over by Francis D. Patterson, M.D., chief of the Division of Industrial Hygiene and Engineering, of Pennsylvania, and the address of welcome was extended by the new director of the Department of Labor and Industry of Pennsylvania, the Honorable Clifford B. Connelley, who pointed out the growing importance of industrial medicine and of the new developments in workmen's compensation and rehabilitation in the state of Pennsylvania.

Frederick L. Van Sickle, M.D., president of the Medical Society of Pennsylvania, addressed the convention on "The Medical Profession, and the New Workmen's Compensation Act of Pennsylvania." Doctor Van Sickle was chairman of the legislative committee which secured the improvements in the Pennsylvania law. He pointed out that medical benefits had been extended to a maximum of one hundred dollars and the length of time to thirty days. He warned the members, however, that Pennsylvania is still short of the standards set in other states for workmen's compensation acts.

C. A. Emerson, Jr., chief engineer of the Department of Health, discussed the sanitary disposal of sewage and trade wastes, and the drinking water supply in factories; he brought to the attention of the meeting the serious dangers that are found in plants from the careless drinking of unfiltered water.

"The Application of War Surgery to Industrial Practice" was well presented by Drury Hinton,¹ M.D., medical supervisor of the Harrison Works, the E. I. Dupont De Nemours Company, formerly a captain in the Medical Corps of the United States Army.

The afternoon session was devoted to the subject of health insurance. John B. Andrews, secretary of the American Association for Labor Legislation, presented the subject "State Medicine or Health Insurance—Which Would Be Best for the Medical Profession—for the General Public?" Doctor Andrews detailed briefly the history of the movement for health insurance in this country, and discussed the advantages of health insurance to the physician in preference to the indefinite plan of state medicine suggested by opponents of health insurance. The speaker had just returned from several weeks' investigation in England and brought many first-hand impressions of medical service under the British Health Insurance Act.

George E. Tucker, M.D., of the Aetna Life Insurance Company, Hartford, Conn., discussed the subject "Have the Medical Profession Adequately Met Their Responsibilities?" After outlining the contributions which physicians have made to social welfare, Doctor Tucker pointed out the necessity of organization to protect the rights of the physician.

"The Cost of an Adequate Medical Service Under Health Insurance," was discussed by John A. Lapp, managing editor of MODERN MEDICINE. The speaker gave detailed statistics of the probable amount of medical service

which would need to be paid for under a health insurance plan. Allowing liberally in most cases for the physician's compensation, he estimated that the medical service for a million men and their dependents would approximate from fifteen to seventeen dollars *per capita*, or from \$15,000,000 to \$17,000,000 for a million men.

A general discussion followed in which it was strongly urged that the Medical Society keep an open mind in the study of the subject in order that adequate provision might be assured for the medical care of the sick under any plan adopted.

CHLORINATION AS A CHECK TO WATER-BORNE TYPHOID

In a paper describing the relation of the chemical industry of Niagara Falls to waterworks, John A. Kienle, of the Electro Bleaching Gas Company, New York City, in an address given at the 1919 convention of the American Water Works Association, gave a summary of the chlorination of water from the first use of hypochlorite of lime at the Union Stock Yards at Chicago, in 1907, to the use of liquid chlorine by approximately 2,500 water works plants at the end of 1918. In 1911, four years after the first use of hypochlorite of lime, approximately 500 water plants were equipped with hypochlorite installations. In 1912 the Niagara Falls, N. Y., plant was equipped for the use of liquid chlorine, and was the first to use this method.

In 1907 with no chlorinated water-supplies, the typhoid fever death rate in the registration area of the United States Census Bureau was 30.3 per 100,000, with an estimated number of deaths in the entire country of approximately 30,000 for the year. In 1917 the United States Public Health Service reported that the rate had dropped 12.3 per 100,000 with an estimated number of deaths of 13,000, and at that time there were about 2,000 chlorinated public water-supplies. According to this, approximately 17,000 lives were saved from death by typhoid in that one year, effecting a saving of over \$125,000,000 annually.

The chlorination of public water-supplies is declared the cheapest insurance that can be obtained, the average annual premium amounting to about 40 cents per 1,000,000 gallons of water treated.

Vaccination as Health Insurance

The United States Public Health Service has issued health bulletin No. 7 of the *Keep Well Series*, under the title of "Vaccination—An Excellent Form of Health Insurance." It is written in the terse, simple English which gives the *Keep Well Series* a distinctiveness that other health bulletins often lack.

The Building Trades Council of Fresno, Cal., has endorsed plans for a clinic through which union men and their families will get medical attention at from \$1 to \$2 a month. A maternity hospital will be one of the buildings erected.

The number of limbs lost in American industry every year is 26,000. This is six times the number of amputations among American soldiers in the year of war. As soon as we have made peace in Europe, can't we do something to prevent the wounding of workmen at home?—*The Vocational Summary.*

¹ The paper by Doctor Hinton will be published in an early issue of MODERN MEDICINE.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C. E. A. WINSLOW, DR. P. H., *Editor*

THE VISITING NURSE ASSOCIATION

ONE of the most striking features of the public health campaign in the United States during the past twenty years has been the development of visiting, or district, nursing organizations. Since Miss Lillian Wald, with a single companion, established what has grown into the Henry Street Nursing Settlement, the part played by the district nurse in the treatment and in the prevention of disease has steadily increased. To-day in most cities visiting nurse associations care for far more sick patients than do the hospitals; while in many cities the visiting nurse organization through its infant welfare and anti-tuberculosis work carries on a larger share of the really effective preventive health work of the community than is borne by the health department,—officially charged with such duties, but sometimes more concerned with the routine inspection of back yards and food stores than with the actual prevention of disease.

It is no uncommon experience for the sanitarian to find that a given city with an undeveloped health department has an admirable record in infant mortality and tuberculosis as a direct result of the activities of a privately supported district nursing organization which has stimulated the establishment of the necessary clinics and dispensaries under its unofficial auspices.

The development of these visiting nurse associations has been so gradual and so free from self-advertisement that the wider significance of the movement as a contribution to health organization is likely to be overlooked. To-day it seems clear that the visiting nurse association constitutes a piece of administrative health machinery which is not only invaluable in itself but may teach us lessons of profound importance in the greater task of making the science of medicine fully effective for the prevention as well as the treatment of disease.

There are three fundamental problems which

confront the health officer and the thoughtful physician who desires to see the possible fruits of modern medical science fully garnered: the organization of the medical profession within itself so that the various types of clinical specialists, with the diverse laboratory facilities which they require, may cooperate effectively; the development of some plan by which medical service may be so easily obtained by the poor that financial considerations will not delay recourse to the physician until it is too late for his service to be effective; and the intimate blending of prophylaxis and therapeutics, without which either must fall short of its full potentialities. All of these problems had their parallels in the nursing field, and all three have been solved by the best of our visiting nurse associations.

The problem of specialization is of course very much less acute in nursing than in medicine; yet it is significant that in a well developed district nursing association we find infant welfare nurses, obstetrical nurses, tuberculosis nurses, orthopedic nurses, mental hygiene nurses, and communicable disease nurses,—all cooperating with each other and often with a general district nurse, who carries on the routine with the counsel and assistance of the specialists as consultants. Here is a type of organization which in its more restricted field accomplishes results analogous to those which are visualized by the proponents of group medicine.

The second problem, that of furnishing care to all who need it, irrespective of financial ability, has again been admirably solved by the district nursing organization. The service of a nurse is always at the disposal of the poorest patient without charge, while those able to pay for the care that is furnished are expected to do so, up to the actual cost of the service which is between fifty cents and one dollar a visit. The organization of a staff which is kept fully occupied all the time makes it possible to reduce the

actual cost to a reasonably low level, and the service supplied to those unable to meet this cost is paid for by some form of public subscription. It is fundamental, however, in the spirit of all good visiting nurse associations that the service given to the poor is not a charity but a duty which the community owes to its citizens; and it seems more business-like to present the cost of such service frankly, as a bill which the more prosperous and public spirited section of the community must assume, than to follow the course of the physician who bears the burden of free service to the poor himself, and then shifts a variable portion of the load upon the shoulders of individual wealthy patients.

Finally, the visiting nurse combines the care of the sick with the teaching of the laws of hygiene in a peculiarly interesting and significant manner. It is true that there are health officials who disapprove of this combination and who question whether the "visiting nurse" is or should be a "public health nurse" at all. This viewpoint is based on the fear that the urgent demands for the care of the sick may crowd out such educational work as is carried on by the public health nurse employed by a health department for this purpose alone.

Practical experience in many places, however, shows that such apprehension need not be justified. The staff of a well organized visiting nurse association does not, as a matter of fact, neglect hygienic instruction but carries it on far more effectively than any one who comes from outside with a purely abstract message. The intimate knowledge of physical and sanitary and social conditions gained by the visiting nurse makes it possible for her to offer, as no one else can, the instruction which a given family needs to get well and to keep well; and the gratitude earned by her direct services in the relief of suffering opens a door for a reception of her teaching which no didactic teacher of hygiene is likely to discover.

The difficulties of medical organization are in many respects more complex and more grave than those which have surrounded the development of the modern district nursing association. It is not to be assumed that any closely similar procedure can be applied in the two professions. Yet the same problems of mutual cooperation, sound financial support, and an infusion of the preventive spirit, which the nurses have solved so successfully, must in the future be met by the physician in his own professional field.—EDITOR.

A sixteen weeks' course of training in public health nursing, embracing both theoretical and practical work, has been opened in the University of Buffalo in coopera-

tion with the local department of health, the department of hospitals and dispensaries, the district nursing association, and the Chapter of the Red Cross, beginning September 29 and closing January 31. Students completing the course will be given certificates. Applicants must be registered nurses in New York or other states with satisfactory qualifications.

Report of Notifiable Diseases

The Public Health reports for August 15, 1919, give the summary for 1918 of the notifiable diseases in all of the states during the year 1918. The diseases reported are: Anthrax, Cerebrospinal Meningitis, Diphtheria, Influenza, Malaria, Measles, Poliomyelitis, Pneumonia, Scarlet Fever, Smallpox, Tuberculosis (pulmonary), Tuberculosis (all forms), Typhoid Fever, and Typhus Fever.

OHIO CONDUCTS EXTENSION COURSE FOR PUBLIC HEALTH OFFICIALS

An extension course in public health organization, administration, and preventive medicine, designed to afford an opportunity to physicians desiring to qualify under the Hughes Law of Ohio for positions in the public health service of that state, has been established under the administration of the Ohio State Department of Public Health and Sanitation, and the College of Medicine of the Ohio State University.

The course was begun September 17 and will continue three months. This three-months' extension course is offered to meet the needs of the state in securing health officials in the 102 health districts created by the Hughes health district bill. Appointments to these positions will be by competitive examination under the Civil Service Commission of Ohio.

The new course is not offered as a substitute for the full one-year course in Public Health and Sanitation given by the Department of Health and Sanitation, College of Medicine, Ohio State University, but is intended only to meet the present situation.

No admission fee will be charged. The course is open to graduates of recognized medical schools, graduates of recognized schools of public health, and to persons having at least one year's practical experience in public health work, subject to approval by the Executive Committee representing the state and college.

All courses will be given with reference to Ohio conditions. The details of the course are as follows:

Public Health Organization:=18 hours.

A discussion of the place of public health work in community life—the cultivation of community resources—the value of community education in specific problems—how to utilize community volunteer effort.

Public Health Administration:=36 hours.

The organization of national, state and local health departments; sanitary law and legal powers and responsibilities of health officers and boards of health.

Preventive Medicine:=36 hours.

The important facts and fundamental principles in preventive medicine are given consideration. Special attention will be given to the methods and procedure for preventing the occurrence of the communicable diseases as well as the control of this group of diseases. The non-infectious diseases will also be discussed from the standpoint of preventive medicine and the public health.

Public Health Problems:=30 hours.

This course includes an elementary consideration of the various public health problems which present themselves. Consideration is given to personal hygiene; vital statistics; epidemiology; the prevention and control of epidemics; sanitary engineering—water supplies, sewage disposal and plumbing; the public health laboratory; tuberculosis; child hygiene, physical supervision of school children; venereal diseases; occupational diseases and industrial hygiene; hospitals; dispensaries and clinics; public health nursing.

Instruction will be given by members of the faculty of the Department of Public Health and Sanitation, College of Medicine, Ohio State University, and by members of the staff of the State Department of Health.

ROLE OF VENTILATION IN PREVENTIVE MEDICINE

BY GEORGE TRUMAN PALMER, CHIEF OF INVESTIGATING STAFF, NEW YORK STATE COMMISSION ON VENTILATION

THE cold season of the year is approaching. We shall soon turn our backs on the seashore and begin building furnace fires. Screens will come down, the windows will close, and heavier clothing be donned. From our present outdoor existence we shall pass to a life indoors.

Coincident with the cold season and this altered mode of living we may expect people to die faster. For every 100 deaths in August, there will be 107 in December, 117 in January, 108 in February, and 120 in March (Chart I).

Chiefly responsible for this excessive winter mortality are the diseases of the respiratory tract. The indications are that during the coming autumn and winter, for every 100 people dying from pneumonia¹ during August, there will be 120 dying from this cause in September, 190 in October, 282 in November, 447 in December, 560 in January, 476 in February, 535 in March, and 414 in April. The sum of the deaths from November to April inclusive is 2,714. This is four to five times the number that would occur if the August rate prevailed (Chart II).

Combination of Causes Seen

There are several reasons for an increased amount of sickness in the winter. In the first place, the body is laboring under a greater strain. More heat is being produced, and to provide this heat the intake of food is increased. The digestive tract has more work thrust upon it. More oxygen is utilized to convert food into heat. Because of increased food consumption and the reduction in skin elimination of waste material through perspiration, the kidneys are called upon for increased effort. Body wear and repair are heightened. In short, the metabolic turnover is greater in cold weather.

In the second place, resistance to infection of the respiratory tract is lessened by cold and over-heating. The circulatory system must adapt itself to a wide range of temperature—from the

PERILS OF INDOOR DISEASES

For every 100 deaths from pneumonia in August there are 535 in March.

Bad ventilation is the most sinister influence at work during the winter and this is largely a matter of over-heating. Our powers of accommodation are not well adapted to high temperatures.

Shall we continue to make conditions right for disease and by our lack of ventilation render the bodily mechanism abnormally susceptible?

Or is it possible for the American people to acquire the cool air habit?

seventies indoors to the thirties and lower out of doors. Unless the vasomotor system responds efficiently to these external variations, there is an undue loss of heat from the body, or else an accumulation of heat, and either the lowering or raising of body temperature a degree or so from normal is fraught with danger.

Thirdly, it is easier to contract infection in winter, for more people have coryza and colds,

which necessitate increased use of handkerchiefs, and consequently pollution of the hands with infectious material is more common. There are also more coughing and sneezing, which spread infectious matter to people in the immediate vicinity.

The problem of lessening the winter mortality is thus one of modulating these aggravating factors, and practices which strain and tax the body unnecessarily must be avoided. Every effort must be put forward to keep the body fit.

We can increase vasomotor tone by cold baths and outdoor exercise. We can also strengthen our resistance to cold by living in cool atmospheres and avoiding over-heated rooms. This brings us to a realization of the importance of ventilation in maintaining health.

Remove Unnecessary Strain

Bad ventilation, and by this term we refer chiefly to over-heating, for this factor is the most sinister of all, imposes an unnecessary strain upon the body mechanism, and over-heating is the rule rather than the exception in our habitations during the cold season.

Let me review briefly the conditions which commonly prevail during the hibernation period of the year.

Indoor temperatures in our homes range from 70° to 75° F., and over. It is the exception to find temperatures below 70°. Most people find this cooler atmosphere chilly, which is *prima facie*

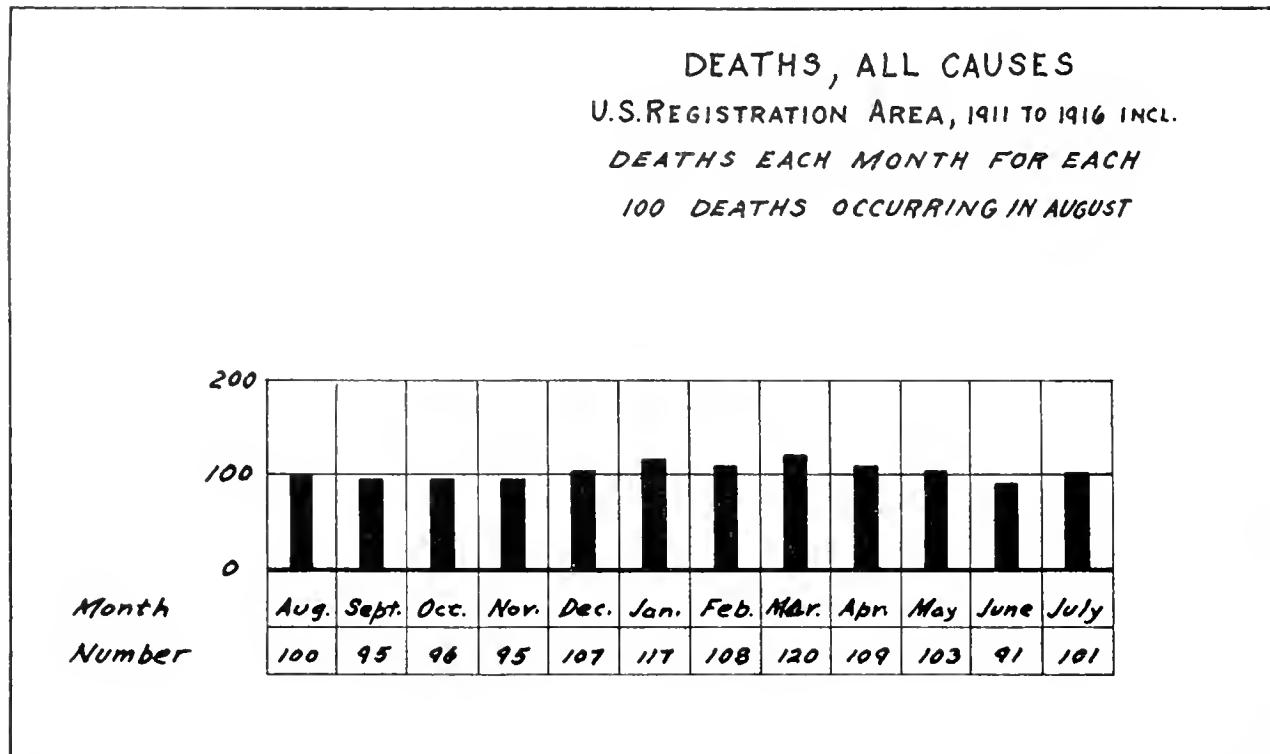
¹. United States Registration Area 1911-1916. Pneumonia (all forms).

evidence of the fact that these same individuals are used to higher temperatures. To find the cooler indoor temperatures it is necessary to go out into the sparsely settled districts, where coal is less readily obtained, where some rooms are not heated at all directly, and where each journey through the hall, or each trip upstairs, means a plunge into a temperature bordering around 60°.

Business offices are over-heated. As a rule it

mometer. From an initial temperature around 68°, the temperature soon rises, after people have assembled, to 75° F. and even 80°. From this "stuffy" atmosphere, which is nothing more nor less than an over-heated atmosphere, people go forth with enlarged turbinates and congested skin, a fertile field for respiratory infection. Club "smokers," amateur entertainments, illustrated lectures, and convention meetings are so

CHART I



The above chart presents data from the United States Registration Area, 1911 to 1916, which show the toll in human life exacted because of our indoor habits of winter.

is no one person's business to watch the thermometer and no one does until the mercury passes 75°, and by this time much of the evil effects have been experienced. The male sex, dressed in heavier clothes, is usually the first to complain. Women workers, clad in lighter weight clothing, find 75° atmosphere rather comfortable. In a room in one of the Government office buildings in Washington, occupied by thirty or more clerks, thermometer readings were made several times daily during the first four months of 1919. Eighty-six per cent of the readings were over 70° and 44 per cent over 74°. Only 14 per cent of 508 readings were within a temperature range recognized as desirable, namely, 65° to 70°.

The assembly hall or room large enough to accommodate from twenty-five to one hundred people unprovided with special ventilating equipment is a flagrant example of over-heating. Here, again, it is no one's business to watch the ther-

frequently held in over-heated rooms that it is a rare exception to find the contrary. I have known people to stay away from these gatherings rather than expose themselves to the discomforts of poor ventilation.

No Escape from High Temperatures

Theaters of all types are over-heated rather than otherwise. The temperature is usually comfortable at the beginning of the performance but, as happens elsewhere, heat builds up as time passes. The writer made observations in five large theaters in New York City during winter weather and found temperatures from 70° to 80°. In only one of the five did the temperature fail to rise above 72°.

Department stores are usually over-heated. Starting off in the early morning with temperatures around 68°, these places soon accumulate heat from the bodies of many shoppers within

and the sun without. It is not long before the over-coated shoppers and even the uncoated clerks feel uncomfortably warm. The shopper can find relief by leaving. The clerk must remain and nurse the discomfort and look forward hopefully to the hour for closing.

Railway and Pullman coaches are rendered so uncomfortable by high temperature as to make one detest traveling in winter. I wonder if any of the readers of this article have boarded a sleeper in the evening in South Station, Boston, bound for New York, and have gone to bed thinking to get some sleep before the train pulled out at 1 a. m. It has been my experience to do so upon several occasions and to lie there perspiring in an atmosphere of 80° only to waken several hours later thoroughly chilled, the temperature meanwhile having fallen to the fifties or below.

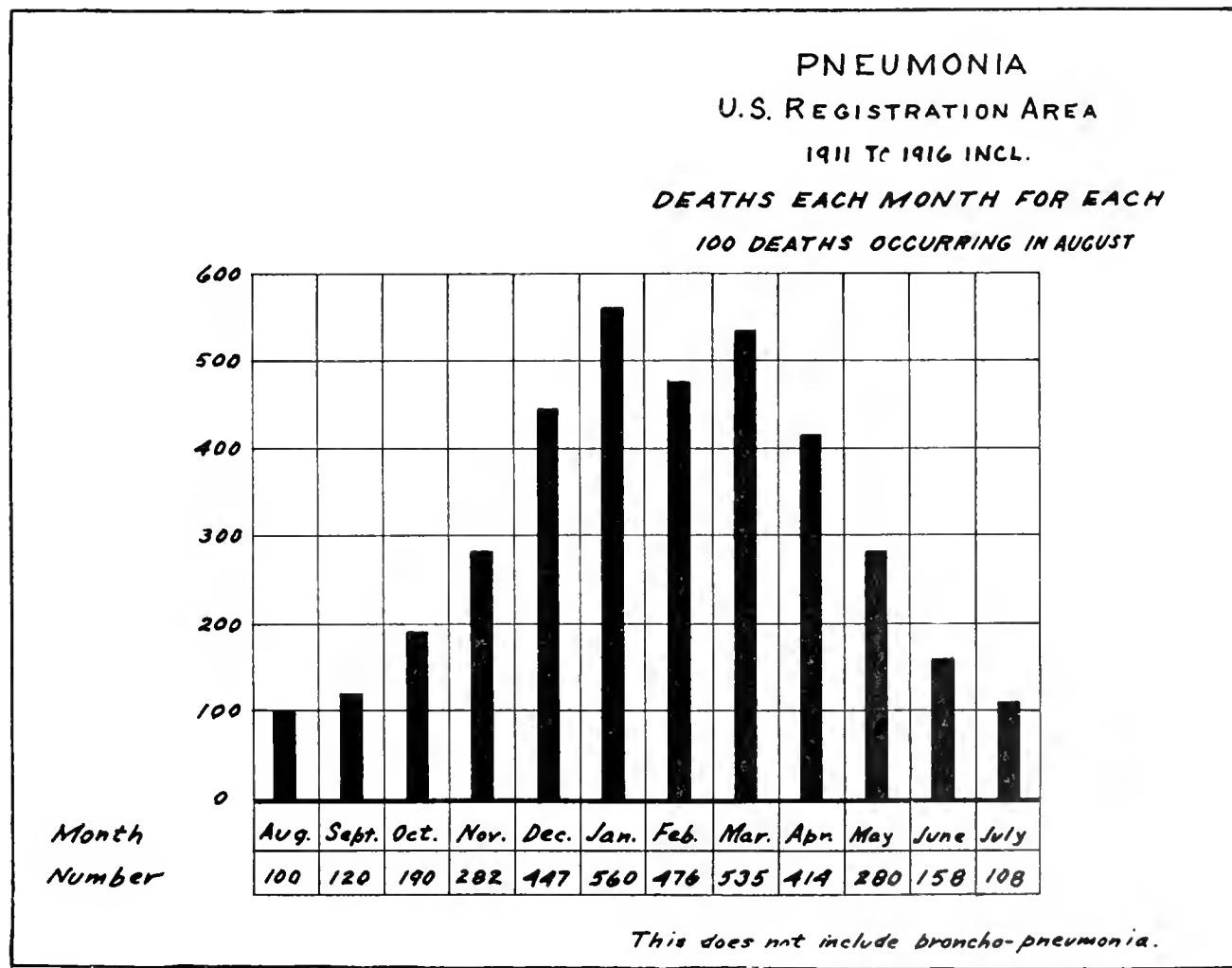
Instances of over-heating in factories, hospitals, and schools are all too common. In some industries there is an excuse for high temperatures. In the other places mentioned there is

none. For five months of the year, from October to April, fully 75 per cent of the waking hours are spent within doors. It is of supreme importance, therefore, to render the air environment of this indoor life non-aggravating.

Heat Worse Than Waste Products

Bad ventilation is purposely referred to in terms of over-heating because high temperature is the dangerous element in ventilating. It is true that there are more carbon dioxid and other products of human exhalation in the crowded room, but the body is amply equipped to meet natural changes in the chemical composition of the air and is not injured by such contact. The odors of crowded rooms are disagreeable but not harmful. There is more dust in congested rooms, but the body unaided is able to meet this element. There are more bacteria to be found in dusty air but they are of the harmless variety. There is less moisture in indoor air in cold weather, and this is irritating if combined with high tempera-

CHART II



The relative mortality is greater when respiratory diseases only are considered. The normal rate in August is less than one-fourth of the death rate in March.

ture. If the temperature is maintained between 65 to 70°, there is neither discomfort nor any indication of harm from the naturally low relative humidity. The objectionable factor in bad ventilation is a thermal one; as chilling temperatures are so uncommon, bad ventilation is largely a matter of over-heating.

High indoor temperatures are generally recognized as uncomfortable, but the case against over-heating is further supported by painstaking scientific experiment, and we do not need to resort to temperatures of 80° and 90° to demonstrate detrimental effects on the body.

Effects of Slight Changes

The New York State Commission on Ventilation has shown that a change even as slight as from 68° to 75° produces in a very short time a visible reaction in the body mechanism. In a 75° atmosphere the pulse in one series of experiments rose from 79 in the morning to 89 in the late afternoon, an increase of 10 beats per minute. At 68° the pulse rate of the same subjects fell from 83 to 70 in the course of the day, a drop of 13 beats. The warmer room thus placed upon the heart the added strain of 23 beats per minute. Even this increased heart action was unsuccessful in lowering body temperature. The normal change at 68° was a drop during the day from 98.82° to 97.74°. In the warmer room there was not a fall but an actual rise from 98.25° to 98.63.²

The above result occurred when the subjects were for the most part inactive. When vigorous physical work is done a somewhat modified result is observed in heart action and in temperature. In this instance the following average readings were obtained:

PULSE RATE PER MINUTE			
	9 a. m.	3 p. m.	Increase
68°	73	77	4
75°	75	78	3
BODY TEMPERATURE (FAHRENHEIT)			
	9 a. m.	3 p. m.	Decrease
68°	98.58	98.11	0.47
75°	98.69	98.53	0.16

The pulse rate is seen to increase almost the same amount under both conditions. Body temperature has fallen 0.47 degrees in the cool room, and 0.16 degrees in the warm room. These experiments suggest that the body at exercise is better able to cope with slight over-heating than when at rest. Exertion causes the body to perspire freely and in this manner heat is dissipated. The sedentary person is apparently just below the critical point where perspiration furnishes an outlet for excess heat; consequently, body temperature increases.

The dangers arising from the unnaturally over-

heated body are indicated by experiments the Commission performed with animals. They found that, as contrasted with control animals at normal temperatures, those exposed to warm atmospheres showed a reduction in the aggressive action of the blood against foreign bodies. Over-heating was coincident with diminished formation of agglutinins and precipitins, and in hemolyzing activity. The significance of this is that over-heating produces a lowered resistance and renders the body more susceptible to infection. It will be remembered that many years ago Pasteur produced a similar result, making immune animals susceptible to anthrax by reducing their resistance through chilling.

There are undoubtedly other changes which occur in the over-heated blood and of which we have as yet no exact knowledge. There are optimum temperatures for each form of plant and animal life. The egg will not hatch if the temperature of the incubator is too high or too low. Vital processes are interfered with by deviations from the optimum temperature. We can readily conceive of metabolic processes being disturbed by slight unnatural temperature deviations in the human body. Is it not possible that waste products in congested areas become toxic or that food assimilation is retarded and that the process of tissue repair is delayed? It would seem as if some such explanation were necessary to account for the feeling of lassitude and uncomfortable after-effects of exposure to high temperature. Is it not possible also that physical exercise moderates this effect through compensatory changes in rate of blood flow, movement of lymph, and removal of the products of combustion?

Thermal Comfort Essential

To be sure, man can accommodate himself to a wide range of temperature, more so than any other form of animal life. This power of accommodation is, however, better adapted to deal with low than with high temperatures. In summer, the body being lightly clad, can cool itself readily by means of perspiration. The skin is more accessible to air currents. In winter the body is heavily clad and cooling of the skin surface is retarded by the clothing. Matters would be simplified if we could remove clothing down to the point where thermal comfort is re-established, but this is impracticable in many cases, particularly among sedentary office workers and store clerks. Thus the regulatory action of the body in disposing of heat is handicapped in over-heated rooms in winter and the handicap is more serious

². These are averages of numerous readings of rectal temperatures, and explain the result carried to the second place beyond the decimal. Thermometers were read to the nearest tenth of a degree Centigrade.

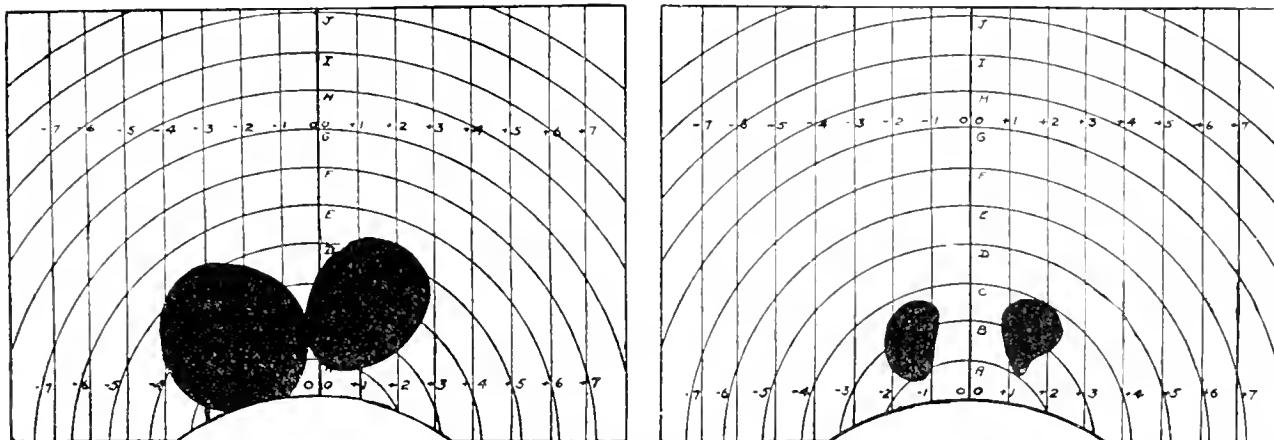
to the sedentary person than to the man physically engaged.

Furthermore, over-warming causes congestion in the nose, and reduces the size of the breathing aperture. The illustration (Chart III) shows a method of following the changes in the nose in the presence of heat. It is common knowledge

in a theater to maintain coolness, but quantity alone, without coolness, will not answer the purpose.

The ends of good ventilation have not been attained when the anemometer registers a standard flow. It is immaterial if 30 cubic feet of air per minute are being forced through a room so

CHART III



Relative size of breathing aperture at normal temperature and after a stay of a few minutes in an over-heated room. The black areas represent moisture-covered space on a cold, polished metal plate held before the nose.

that constriction of the breathing space is frequently coincident with or precedes coryza; this in turn means more frequent blowing of the nose, and increased pollution of the hands.

Granted that the over-heated room is an undesirable feature of our daily life in winter, why is it that we fail to act on this knowledge?

Inaction Accounted For

There are four reasons which may be offered. In the first place, over-heating occurs because many people, though conscious of the discomfort, are ignorant of the subtle possibilities for harm. In the second place, the enlightened public who have been informed of the dangers of bad ventilation do not believe. They may subscribe to this doctrine publicly but privately there is a lurking doubt or only a half-hearted appreciation of the danger. Thirdly, there is a mistaken conception of ventilation. In the most commendable campaign for fresh air waged in recent years attention has been centered on quantity and chemical quality of air rather than on its physical attributes.

Fresh air primarily is cold air. Increase the temperature and freshness vanishes. This statement is supported by experimental evidence. We must reverse the order of these ventilation factors. Of first importance is coolness. Secondary to this are quantity and quality. These factors should be inseparable. As it happens they are frequently divorced. Air quantity is necessary

long as the temperature is 75°. In other words, aeration should be looked upon as a means to an end. The end is coolness. The thermometer and not the anemometer should be the guiding register. This is frequently the error of the ventilating engineer. It is difficult for him to understand why a ventilating system is not a success



Method of making the nose-aperture measurement shown in Chart III.

when he has assured himself that the number of air changes per hour is up to standard.

The fourth point we wish to make is that the public is unfamiliar with the methods of preventing over-heating. We naturally associate heating and ventilating. We must learn to associate cooling and ventilating. Our domiciles and

work-rooms start out at comfortable temperatures, but they accumulate warmth during the course of the day. What we must do, and have not done, is to take cognizance of the natural sources of heat. This can be done by running furnaces at a constant rate and carrying off the excess heat of industry and occupancy and from the sun by increasing the air flow; or it can be done economically by checking the output of artificial heat and actually utilizing the natural sources of heat.

The necessity for some such reduction in the artificial heat output in order to maintain comfortable temperatures may be appreciated from the following illustration. The large hall or theater is equipped with approximately a square foot of radiation for each one hundred cubic feet of space. One square foot of surface on the low pressure steam radiator gives off about 250 B.t.u. per hour, an amount comparable with the heat output of the average occupant in the audience. When the theater is filled so that there is one person to each one hundred cubic feet of space, the audience is producing as much heat as the steam radiators. There is twice as much heat being given off within the room when filled as when empty. Theoretically, if all artificial heat were cut off when the theater is fully occupied the temperature would remain the same as before occupancy. In this calculation no allowance has been made for heating the air used in ventilating, but still the illustration is sufficient to show the main cause of over-heating, and this is applicable to department stores, factories, schools, and offices, as well as to theaters.

Cool Air Campaign

To eliminate over-heating it will be necessary to project an earnest organized campaign against it. The occasional and random issue of health board manifestos on the subject are insufficient. We must look to the health officer and the family physician to lead the charge. The American people lack the habit of living in cool rooms. They must be encouraged to cultivate this habit. The health officer can:

- (1) Give publicity to a ventilation standard of 65° to 70° F. for those in sedentary occupations.
- (2) Strive toward the elimination of over-heating in public places through publicity, ordinances, and inspections.
- (3) Encourage the use of a thermometer as an indicator of good ventilation.
- (4) Stimulate the cool room habit in private places by publicity and inspection.

The family physician can render a service in

the home through friendly suggestion expressed with conviction. He can tell the head of the house that cool atmospheres will tend to remove some of the aggravating causes of nose, throat, and lung weakness, and give arteries and kidneys a better chance to function properly. The American citizen cannot fail to be interested in measures which will lengthen his life and make him more efficient and more cheerful in the living of it.

The family physician can tell the employer of an experiment conducted by the New York State Commission on Ventilation in which 15 per cent more physical work was performed by a group of men in an atmosphere of 68° than when working in one at 75°. This experiment was not of the impractical kind, but on the contrary it was conducted with the factory and office employee in mind. The subjects of the experiment were young men who were paid a weekly wage. A portion of the day was given over to the lifting of dumb-bells. A bonus in addition to the wage was paid for this work. By working assiduously a man could increase his daily pay by 50 per cent or more. He was not compelled to work. His regular wage would continue whether or not he touched the dumb-bell. The bonus was sufficiently large to be worth obtaining and yet not large enough to induce him to work if he did not feel like it. In other words, this test was a measure of his inclination to work. The result showed that his inclination to work was 15 per cent greater in a cool room. When you ask the employer to prevent over-heating you are not thus appealing solely to his good nature. You are giving him sound business advice.

The most difficult attack in this campaign will be against the places of amusement. You cannot insure increased patronage to a theater solely by good ventilation. There is no use in deceiving ourselves into the belief that good ventilation with a mediocre attraction will draw patrons away from a badly ventilated theater with Mary Pickford as the drawing card. People go to the theater primarily for entertainment. If the brand of entertainment is equally good at two places, the one with the better ventilation eventually will show the more receipts; but entertainment will be had, ventilation or no ventilation.

Theater and auditorium ventilation must be improved through municipal ordinances and through public sentiment. If the public develops the cool air habit in home and office, it will not be long before its wants reach the ears of theatrical managers and then results will follow quickly.

There are many mechanical and structural de-

tails which must be observed in combating the over-heated room, but these are matters which cannot be touched upon here. The first step in this campaign is to develop a "cool air conscience." The mechanical features are not complicated and will be forthcoming when the demand is great enough.

Good ventilation is worth while. The sooner we utilize our knowledge of the subject the sooner will be the return. Good ventilation alone will not make us all live to a ripe old age. It is not a solution for all labor troubles. It may not have the slightest effect in preventing such specific

infectious diseases as measles, scarlet fever, or diphtheria, which attack the susceptible and evade the immune. Let us not be unreasonable in our prophecies. Exaggeration will only lead to disappointment and distrust. Preventive medicine can build stronger if it recognizes its own limitations. What we can promise is increased indoor comfort, a lessened number of infections of the respiratory tract, better health, the prospect of a longer life, and increased physical efficiency. These attributes are a sufficient incentive in themselves for acquiring the cool air habit. It is unnecessary to claim more than this.

NEIGHBORHOOD ORGANIZATION VS. TUBERCULOSIS

BY N. A. NELSON, SUPERINTENDENT, CINCINNATI ANTI-TUBERCULOSIS LEAGUE, CINCINNATI, O.

SLOWLY, it is true, but surely nevertheless the interest and cooperation of the individual citizen is being sought and gained in the solution of problems of public welfare. And just as surely as those problems vary with the nature of a community, even to as small a unit as a city neighborhood is their solution to be found only in the interest of the citizens of the neighborhood in them and their acceptance of responsibility for them.

Two factors are responsible for the realization that this is the time to gain the attention of the citizen to problems of public welfare; that in the neighborhood are to be found the peculiar phases of those problems as they more acutely affect him; and that their 100 per cent solution can be approached only through the full cooperation of all the elements of the community.

Direction of New Efforts

The first is to be found in changes which are taking place in the field of public welfare itself. Public health and social service agencies, in their struggle for existence, have been concentrating their efforts in the advertisement of their accomplishments in terms of quantity in an attempt to secure public recognition and funds. Little time has been devoted to analyses which would demonstrate the quality of their services in terms of value and results to the recipient, or as to how they might be improved. Now that the need for these organizations is generally conceded by the public, and their existence is assured, more time and thought is being put into improvement of service.

This has led toward cooperation between groups of agencies. The nature of this cooperation is demonstrating itself in several ways: financial

federations, coordinating councils to prevent overlapping of work, case committees, common districting by groups of agencies, the health center and the community center all represent an effort on the part of agencies to cooperate.

Even this improvement of service failed to bring the agency into contact with the large, unreachèd portion of the public needing its services. It failed, furthermore, to secure the interest and cooperation of the whole public either as a body or in terms of individual citizens who are, after all, directly or indirectly affected by the problems of some of them. It was then that some social workers came to the realization that the most essential party to full cooperation had not been considered, *i. e.*, the object of their efforts, this same public. Thus we have come to the idea of neighborhood organization.

The second factor is the world movement toward a democracy which will give the individual a real interest and a real responsibility in the affairs of the community, the state, and the nation. Prussianism is doomed, not alone in national affairs, but in the management of the smallest civic enterprise; and thus, together with the natural development in the field of public welfare has come the spirit of democracy which demands that the people play a part in the solution of their problems.

Aiming at Civic Unity

Neighborhood organization can and should accomplish several ends not possible under the old form of general organization. Roughly outlined they are:

(1) To secure the interest and cooperation of all of the elements of the neighborhood in the discovery and study of public problems as found

in the neighborhood. Neighborhood elements should include the professions, business, medical, sanitary and social services, schools, churches, and civic bodies, as well as the private citizen.

(2) To educate the neighborhood to a realization of the importance of those problems and the means for their solution.

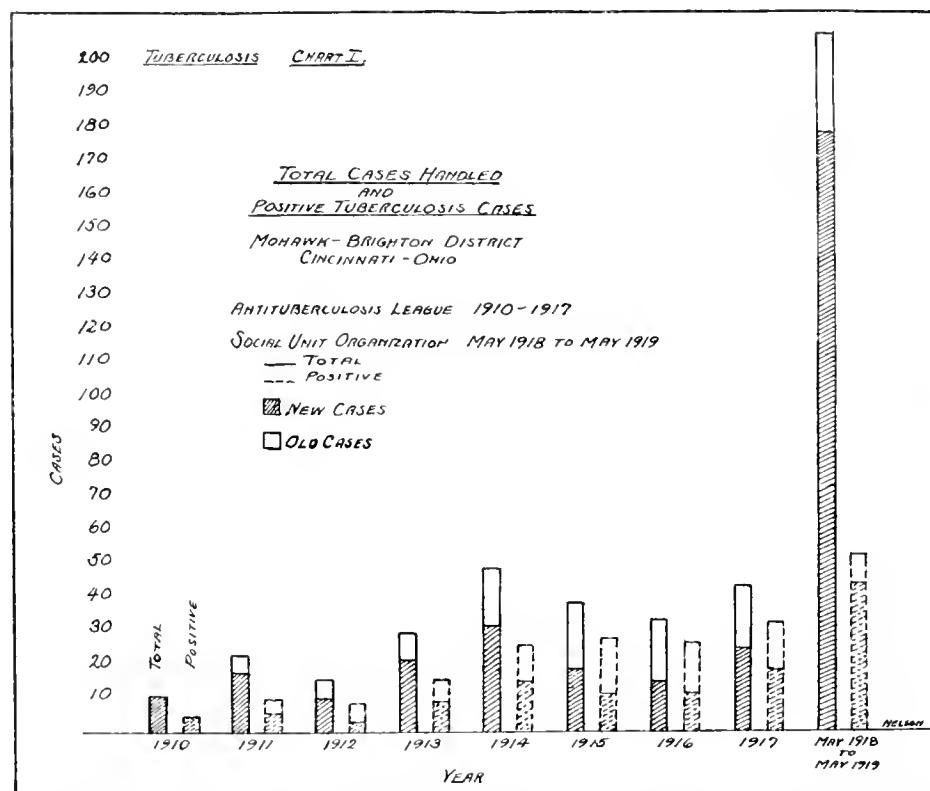
(3) To do 100 per cent work upon those problems. This should include 100 per cent baby registration, 100 per cent physical examination, 100 per cent discovery and care, not only of the tuberculous, but of the potential tuberculous, etc.

Neighborhood Organizes for Real Work

In 1917 the Cincinnati Anti-Tuberculosis League through the Municipal Tuberculosis Committee, organized by Mr. Courtenay Dinwiddie, then superintendent of the League, realizing the importance of community organization, had developed plans for a neighborhood health center through which these objects might be attained. At that time its attention was called to the plan of the National Social Unit Organization. Believing that the latter was capable of even further development than their own, the Unit plan was presented to the people of Cincinnati, largely through the efforts of Mr. Dinwiddie and of the Municipal Tuberculosis Committee, headed by the late Dr. John H. Landis, then health officer, and strongly supported by Mr. William J. Norton, director of the Council of Social Agencies. It was given a reception which brought the Unit to Cincinnati in the face of more or less strong competition on the part of fifteen other cities, among them Washington, Baltimore, Cleveland, Minneapolis, St. Paul, Kansas City, Den-

ver, Newark, New Haven, and Providence. Decision as to the district in which the plan should be tried was left with the people of the various sections of the city and the overwhelming response from the Mohawk-Brighton District left no other choice to be made. The Social Unit Plan has been the subject of many conference papers and publications. It is well known and is being followed and studied closely by leading men and women of the country, hence a detailed account of it is not necessary here. It is being carried out in a neighborhood of some 15,000 inhabitants in a representative section of Cincinnati. The Unit is divided into thirty-one "blocks" of approximately 500 inhabitants each. Each has a council elected by the residents of the block over 18 years of age. This council elects an executive

CHART I



The increase year by year of cases handled is to be noted. Total cases handled have increased 373 per cent; new cases, 616 per cent; positive cases, 65.6 per cent; and new positive cases, 144 per cent. A tabulation of the data appears in the accompanying table.

TABLE I
TOTAL CASES HANDLED, OLD AND NEW, POSITIVE CASES, OLD AND NEW, MOHAWK-BRIGHTON DISTRICTS:—
ANTI-TUBERCULOSIS LEAGUE, 1910-1917—SOCIAL UNIT ORGANIZATION, MAY, 1918, TO MAY, 1919.

Cases	1910	1911	1912	1913	1914	1915	1916	1917	May, 1918, to May, 1919
Total	11	23	16	30	48	39	34	41*	208
New	11	18	10	22	32	19	15	25	179
Old		5	6	8	16	20	19	19	29
Positive	5	10	8	16	26	28	37	32	53
New	5	6	3	9	15	11	11	18	44
Old		4	5	7	11	17	26	14	9

*Total cases handled by League in entire city (1917), 3,088; (1918), 3,172.

These figures give a comparison, year by year, of the cases handled by the League and by the Unit. Chart I illustrates graphically the comparisons.

or "block worker" who represents the residents of her block on the Citizens' Council of the Unit. She visits the families in her section, keeping them in touch with the Unit, building up the Unit spirit, and bringing to the proper department of the organization their specific problems. She is paid \$4 a week for the time she loses from her household duties.

The Citizens' Council gives representation to the people of the district; an Occupational Council secures the interest and cooperation of the various occupations and professions; while the physicians, nurses, and social workers have their groups for the consideration of problems peculiar to their work. No new work is undertaken until it has the endorsement of the people of the Unit through their representatives on the various councils. The extent to which they are interested was fully demonstrated by a vote by the people of the district in April, 1919, of 4,034 in favor of the Unit, to 120 against it.

Most of the city welfare agencies are cooperating with the Unit, some to the extent of the full-time service of a worker. Among the latter agencies is the Anti-Tuberculosis League.

Anti-Tuberculosis League Cooperates

In May of 1918 the League sent one of its nurses to the Mohawk-Brighton District where she has since devoted her whole time. Instead of



The nurse from the Mohawk-Brighton Social Unit is welcome in many households.

specializing, however, in tuberculosis nursing she became one of a corps of five nurses doing generalized nursing, each of the five caring for the tuberculosis work in her district. All of the nurses regularly attend the clinics at the League dispensary, thus gaining valuable training and



Social Unit nurse measuring baby.

experience in this special field. Their cooperation with the League physicians whose dispensary still serves as a diagnostic center for patients from the Unit, gives them additional advantages in the handling of their work.

In the same way the League nurse is given experience and training in general nursing, child welfare and in neighborhood service. Both the League and the Unit benefit by this close cooperation and interchange of experience.

This relationship has existed a little more than a year and the purpose of this study is to determine what has been accomplished in the field of tuberculosis during the first year under the Unit plan of organization as compared with the work of the League in the district in previous years.

TABLE II
CASES REPORTED FROM SOURCES COMPARABLE TO BOTH ANTI-TUBERCULOSIS
LEAGUE AND SOCIAL UNIT, MOHAWK-BRIGHTON DISTRICT—ANTI
TUBERCULOSIS LEAGUE 1914*-1917—SOCIAL UNIT ORGANI-
ZATION, MAY, 1918, TO MAY, 1919.

Source	1914	1915	1916	1917	May, 1918, to May, 1919
Board of Health.....	1	1	3	3	25
Private Physician	5	2	1	5	10
Application to Sanatorium.....	6	4	3	9	9
Own accord	2	2	.....	1	5

*Data previous to 1914 not reliable.

The study will be limited, of necessity, as far as clinical results with individuals are concerned, the time of handling by the Unit being too short to look for such results; but there are many factors relative to the quantity of the work done and its quality in general terms that make interesting and very valuable comparisons and allow of important conclusions.

With the nurse, the League turned over to the Unit in May, 1918, the 29 cases from the District which it was handling; of these, 9 were positive. By May 1, 1919, a year later, the Unit had handled 208 cases, 53 of which were positive. Of the 208 cases, 124 were still under care at that date, 31 of which were positive.

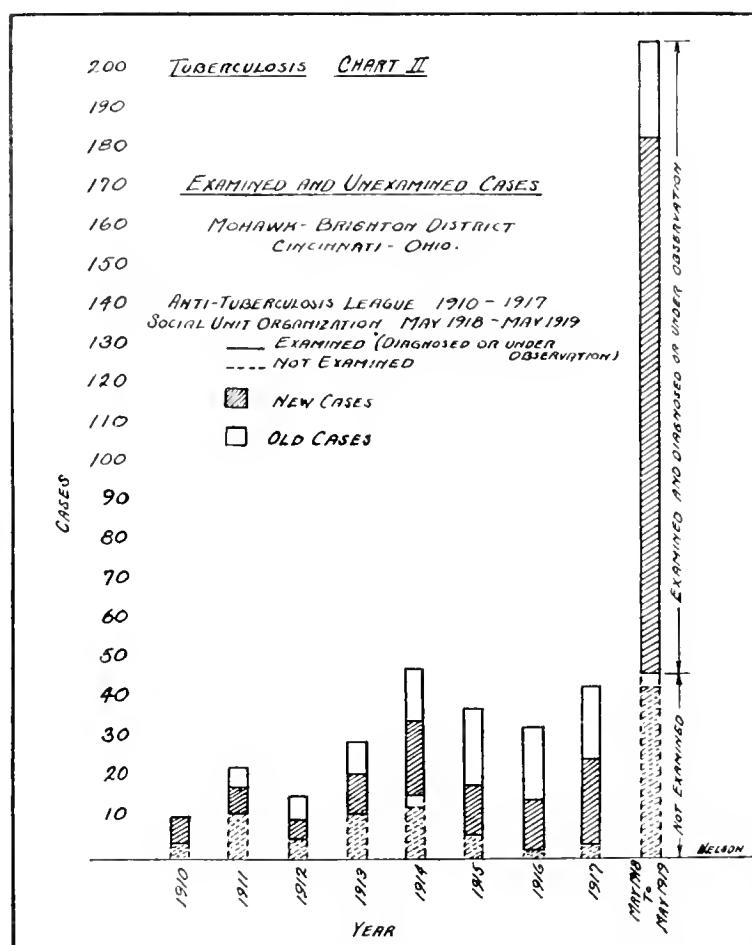
A comparison, by years, of the number of cases, new and old, handled by the League and by the Unit, as shown in Table I and in Chart I, is enlightening: The total cases handled have increased 373 per cent; new cases 616 per cent; positive cases 65.6 per cent and new positive cases 144 per cent.

Even these high increases may not represent the full possibilities of the Unit as it must be remembered that the Unit began with but 29 cases and built up, during the year this remarkable total. Now that the higher level of which the Unit is capable has been more nearly reached, the total number of cases for following years should be greater. Perhaps a fairer comparison would be in the number of cases still under care at the end of the year. Thus the 124 still carried by the Unit represent an increase over the League's 1917 record of 551 per cent, and a 417 per cent increase over the League's highest record of 24 for 1914. Similarly, the 31 positive cases still carried by the Unit are an increase of 182 per cent over the League's 1917 figure of 11, and 107 per cent over the League's high mark of 15 in 1916.

Of the 179 new cases reported, 103 were located by forces within the Unit itself. The general good will of the people toward the purpose of the Unit, the ability of the blockworkers to win the confidence of

their families, generalized nursing, child welfare work, and cooperation on the part of physicians are all factors in this increase, intangible and incapable of actual measurement, but nevertheless evident to anyone who has been in touch with the Unit. They are factors without which no amount of intensification of service could secure an opening into the homes of so large a number of families in so short a time.

CHART II



The relative proportion of work done, as shown in Table II is more clearly seen in this chart.

TABLE III
TOTAL CASES HANDLED CLASSIFIED ACCORDING TO DIAGNOSIS. MOHAWK-BRIGHTON DISTRICT:—ANTI-TUBERCULOSIS LEAGUE, 1910-1917—SOCIAL UNIT ORGANIZATION, MAY, 1918, TO MAY, 1919.

Diagnosis	1910	1911	1912	1913	1914	1915	1916	1917	May, 1918, to May, 1919
Not examined, not diag.	4	12	5	12	16	6	2	3	47
Examined, not diag.	1	.....	1	1	1	1	1	1	19
Diag. Neg. Dismissed	.....	.....	1	1	1	1	1	1	17
Diag. Neg. Not dis.	.....	.....	1	1	2	2	1	3	47
Anemic	.....	.....	.....	.....	1	1	2	4	10
Pre-tuberculous	.....	.....	.....	.....	1	1	2	4	10
Non-pulmonary tuberculosis	.....	1	1	2	2	2	.....	.....	.....
Pulmonary tuberculosis—	.....	.....	.....	.....	1	1	1	1	1
Stage I	.....	1	.....	2	1	4	10	6	22
Stage II	2	5	5	11	22	20	16	25	31
Stage III	3	3	2	1	1	2	1	1	.....
Pulmonary tuberculosis—	.....	.....	.....	.....	1	1	1	1	5
Unclassified	1	1	1	.....	1	1	1	1	5
Total	11	23	16	30	48	39	34	44	208

The examined and unexamined cases are brought together in this table for comparison. The balance is again in favor of the Unit plan, which exceeds in each classification the highest number by the League. A graphic illustration of the data is provided in Chart II.

That the confidence which is so necessary to the successful entry into the home is a reality in the Unit, built up by the Unit form of organization, is attested by leading individuals and organizations in the city. The Council of Social Agencies says of it: "Unquestionably the Social Unit Organization has been able to develop a community consciousness in the Mohawk-Brighton District which has not been developed to the same extent in other districts of the city; a community consciousness which takes into consideration the happiness of all the people living in that district; a neighborliness which is highly commendable. The Social Unit Organization has created community machinery and a community spirit where an unprecedented proportion of the individuals needing health service have been reached by its preventive work."

Mrs. C. E. Sibbett, of the Sands Kindergarten School in the Social Unit District, writes: "The result of the nursing care provided by the Social Unit Organization to the small children of the Mohawk-Brighton District is very apparent. Through my visits in the homes of these children I have been able to see a markedly greater interest and intelligence about child care. I have noted general improvement in home conditions and a degree of cooperation which is exceedingly gratifying."

Dr. Randall J. Condon, superintendent of schools, in an address at a neighborhood meeting of the Social Unit, said: "I know of no other community where the people would express such an interest in their neighborhood affairs as you are doing in coming together for this meeting in such large numbers to discuss purely general problems and plans for the civic and social welfare of their neighborhood."

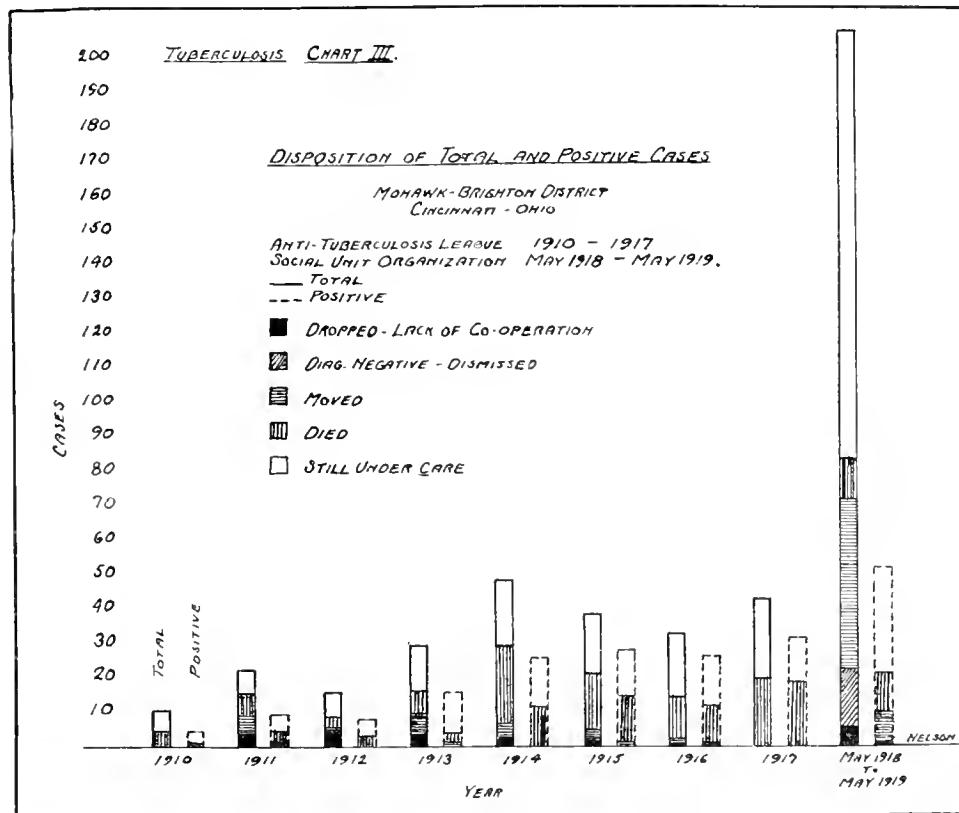
An increased number of contacts with sources ordinarily reporting cases to the League, is indicated in Table II.

A study of the examined and unexamined cases can be made from Table III and Chart II. Of the 47 not examined and not diagnosed, 43 are new cases, 18 of which moved before examination could be made, and 10 of which came under observation during the last four months of the year.

Of the 22 first-stage cases, 17 are new; 27 of the 31 second-stage cases are new; 3 new arrested cases have been found and are under observation.

The large group of 67 negative not dismissed, anemic and pre-tuberculous cases, of which 54 are new, represents a gratifying increase in the supervision of potential tuberculosis and thus in preventive work. Compared with the 8 handled by the League

CHART III



Losses of cases during the year, including diagnosed negative and dismissed, moved and not found, constitute 78% of the total lost; 18% of the total lost died.

TABLE IV

STATUS, AT END OF YEAR, OF TOTAL CASES HANDLED, MOHAWK-BRIGHTON DISTRICT:—ANTI-TUBERCULOSIS LEAGUE, 1910-1917—SOCIAL UNIT ORGANIZATION, MAY, 1918, TO MAY, 1919.

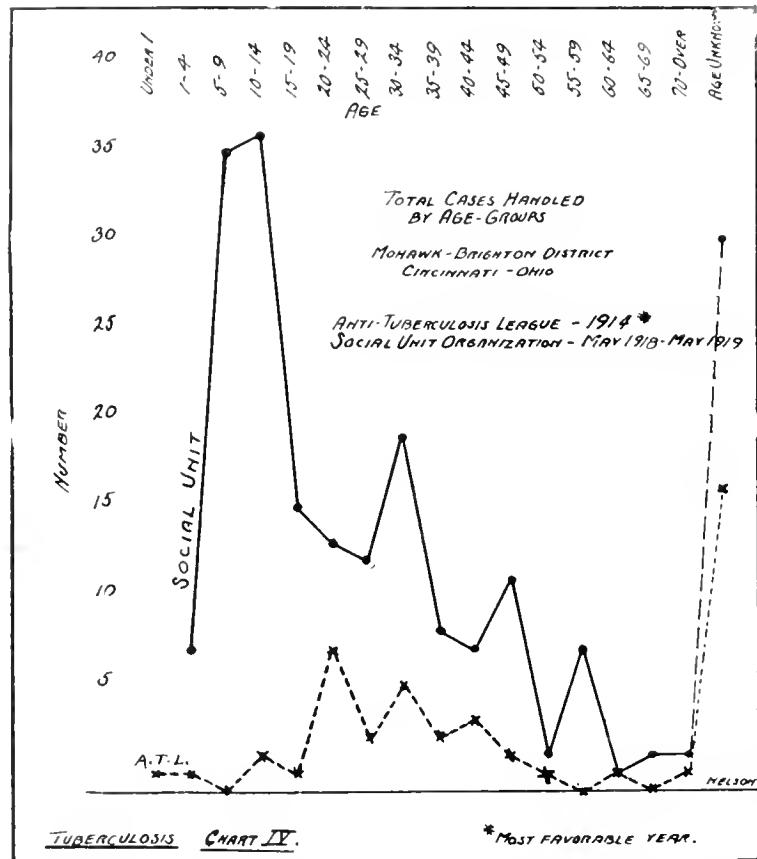
Status	1910	1911	1912	1913	1914	1915	1916	1917	May, 1918, to May, 1919
Dropped for lack of co-operation	4	4	4	4	3	2	1	.....	6
Diag. Neg. Dis.	.....	.....	.....	.....	.....	.....	.....	.....	17
Moved	3	1	4	1	3	1	.....	.....	41
Not found	2	1	2	3	.....	.....	.....	.....	8
Dead	5	7	3	7	23	17	13	20	12
Still under care	6	7	7	13	18	17	19	24	124
Total	11	23	16	30	48	39	34	44	208

The status of cases at the end of year is shown graphically in Chart III.

in 1917, the highest of any year, it represents an increase of 575 per cent. The 19 examined but not diagnosed also undoubtedly represent several cases which will be included in one of these classes later on.

Table IV and Chart III indicate the status, at the end of the year, of the cases handled.

CHART IV



The most gratifying part of the work under the new organization is its concentration on the younger age groups where preventive work is most effectual.

Only 2.9 per cent of the cases were lost through lack of cooperation, while 59.6 per cent remain under care. In no previous year has as great a percentage of the total number of cases handled remained under care at the end of the year, the 1917 percentage for the League being, 54.9 and its high record in 1916 reaching 55.9 per cent.¹

Disposition of Cases

Losses due to no fault of the Unit, including moved and not found, constitute 58.3 per cent of the total lost, and 14.3 per cent of the total lost died. Diagnosed negative and dismissed account for 20.2 per cent of those not carried over. But 1 of the original 29 cases has been dropped through lack of cooperation, 1 was diagnosed negative and dismissed, 4 moved and 2 died, leaving 21 or 72.41 per cent still under care.

Perhaps the most gratifying results are to be

found in the study of age-groups reached. A glance at Chart IV will reveal that an enormous increase has been made in reaching the younger element, from 5 to 14 years of age in particular. In the light of modern belief that tuberculosis infection takes place largely in childhood, it would seem that the Unit is reaching just the groups with which the greatest preventive work can be done. And after all, the preventive work, although the least measurable from the point of view of clinical results except over long periods of time, is the most important and productive work to be done. This chart speaks for itself and needs no explanation. The Unit work has been compared with the most favorable year of the work of the League as far as reaching low age-groups, is concerned, which leaves no room for doubt as to the vastly greater amount of work done by the Unit.

Financial Side of Coordination

In terms of cost, has the League been repaid for its contribution of one nurse to the Unit? Excluding entirely the Mohawk-Brighton District, each League nurse averaged, in 1917, 1,438 visits at a cost, including overhead and excluding time spent in the dispensary, of \$.93 per visit. In 1918, 1,399 visits were made at a cost of \$1 per visit, the increase being due to an increase in salaries and an increase in car-fare. The Unit made 1,570 visits at a cost of \$502 per visit of \$.331, if the time of the block-workers in developing coop-

eration with the nursing service, be considered. Thus a greater number of visits has been made in the Unit than by each League nurse, at more than 45 per cent less cost per visit.

Each nurse cost the League an average of \$1,399 in 1918. Based on visits, the Unit has done 1,570 1,399 X \$1,399 or \$1,570 worth of work on the League basis of cost for 1918.

The League paid the salary of the nurse sent to the Unit which, together with the cost of part of a stenographer's time and of filing, amounted to \$983. For \$983 the League has had made for it more visits under the Unit Plan of organization than the average number made by League nurses at a cost of \$1,399.

On the basis of actual cost to the Unit: tuberculosis visiting has been done for \$793.89 or

¹ Of 3,172 cases handled in the entire city by the Anti-Tuberculosis League in 1918, 45.5 per cent were carried into 1919.

\$837.91 if the work of the block-workers is to be included.

The League nurse made 171 visits in the district in 1917. On the basis of 1,438 visits per nurse, this represents 12 per cent of the time of one nurse. Five Unit nurses made 1,570 tuberculosis visits in a year's time of a total of 19,286 generalized nursing visits.² Thus, visits were increased 918 per cent under the Unit Plan with an increase in time expenditure of less than 325 per cent.

Conclusions

(1) In the Social Unit, as acknowledged by all who have studied its work, a neighborhood organization has been built up which has led to an unprecedented neighborhood interest and cooperation.

(2) Not only the Anti-Tuberculosis League, but other city agencies, notably the Associated Charities, the Better Housing League, and the Humane Society have found the neighborhood organization very effective in their work in the District.

(3) In the field of tuberculosis, the Unit Organization has succeeded, through its intensified service, coupled with the unusual neighborhood cooperation, in increasing total cases handled 373 per cent, new cases 616 per cent, and cases carried over, 552 per cent. It still carried 60 per cent of its total cases at the end of the year. It increased the group in which preventive work can be done by 575 per cent. Only 2.9 per cent of its cases were lost through lack of cooperation; and from the point of view of age-groups reached, all data is undeniably in favor of the Unit plan of organization, and all at a cost of nearly 50 per cent less!

A New Measure of Efficiency

While no charge of inefficiency can be made against the League on the basis of its present form of organization, for the nurses are already seriously overburdened with work, it is evident that an improvement well worth consideration has resulted in operation under the Unit Plan.

Slowly, it is true, but surely, nevertheless, the interest and cooperation of the individual citizen is being sought and gained in the solution of problems of public welfare. And just as surely as those problems vary with the nature of the community, even to as small a unit as a city neighborhood, is their solution to be found only in the interest of the citizens of the neighborhood in them and their acceptance of responsibility for them.

². An actual analysis of tuberculosis and generalized nursing visits, just completed, show the average length of the tuberculosis visit to be slightly less than the generalized visit. Thus the actual increase in time has been somewhat less than 325 per cent.

WAR RISK BUREAU AND RED CROSS WORK TOGETHER

The American Red Cross was officially designated as the clearance medium for all community problems of service men at a recent conference of the several national welfare agencies with the director of the Bureau.

WOMEN PHYSICIANS IN SIX WEEKS' INTERNATIONAL CONFERENCE

A six weeks' conference of women physicians from nine countries opened in New York City during the third week of September. India, South America, Canada, Switzerland, Norway, Sweden, France, Italy, England and China will be represented. The gathering is being conducted under the auspices of the Young Women's Christian Association. The social morality committee of the war work council of the Association.

A tentative program for the conference has been prepared. "The Woman Physician and the Health of Women" will be the general topic under which such subjects will be discussed, as "Can Women Be Well Under Modern Living Conditions?", "Physical Examination as a Means of Health Education" and "Reconstruction of the Lives of Women in Relation to Health."

A study of special problems relating to the health of women will include the arguments for and against working women as mothers. Child hygiene and direction of the development of the child also have a place in the program. "Industrial Health" is a subject of interest to interest the business woman.

"Present Social Conditions and Their Effect on Health and Personality" will take up "The Marriage of To-morrow," "The Evolution of Love in Marriage" and "Marriage and Divorce." These discussions will take place in closed meetings for physicians only.

New York Association for Medical Education

The Association for Medical Education organized by physicians and surgeons of New York City, has been incorporated and is about to become active. It is felt that the many advantages offered for special study and research in the institutions of the city should be of greater service to humanity by broadening their field. The corporation consists of three hundred active practitioners and teachers. The officers are: Wendell C. Phillips, M.D., specialist in otology, laryngology, and rhinology, president; George D. Stewart, M.D., professor of surgery, first vice-president; Glentworth R. Butler, M.D., second vice-president; Haven Emerson, M.D., secretary; and Arthur F. Chase, treasurer. The executive secretary is Dr. Henry O. Reik, of Baltimore, recently lieutenant-colonel in the Medical Corps of the U. S. Army, commanding officer of Base Hospital No. 67, A. E. F. He was formerly associate in ophthalmology and otology (1909-12) Johns Hopkins University Medical School. Funds are in hand to maintain a Bureau of Information and Correspondence at the New York Academy of Medicine, 17 West Forty-third Street. Here data concerning all available facilities will be at hand. The work of the association will supplement the Bureau of Clinical Information and Society for the Advancement of Clinical Study. An effort will be made to standardize the instruction of the various medical schools of the city. A central residence for visiting physicians will be maintained where they may be kept in touch with medical matters. The association will cooperate with similar organizations abroad. A board of trustees will manage the business affairs.

A CRITICAL SURVEY OF PUBLIC HEALTH TOPICS

- I. Industrial Community for Arrested Cases of Tuberculosis.
- II. Practical Training for Public Health Nurses.
- III. Tuberculosis in California State Prisons.
- IV. Variations in Influenza Outbreaks.
- V. The Massachusetts Plan.
- VI. Sanitary Privy Progress in North Carolina.
- VII. Nutrition Clinics and Classes.
- VIII. The Malnourished Child.

BY JULES SCHEVITZ, GENERAL SECRETARY, OKLAHOMA TUBERCULOSIS ASSOCIATION, OKLAHOMA CITY, OKLA.

I—INDUSTRIAL COMMUNITY FOR ARRESTED CASES OF TUBERCULOSIS

“THE evidence is overwhelming that the campaign against tuberculosis has not yet developed adequate plans and facilities for the post-sanatorium treatment of patients,” states Dr. H. A. Pattison in the introduction of a report on “The Agricultural and Industrial Community for Arrested Cases of Tuberculosis and Their Families,” submitted to the Federal Board for Vocational Education.

The environment of the sanatorium graduate and his method of spending his time after working hours are frequently factors in determining the reactivation of the disease more important than the work itself. If the arrested case could work and mingle with men in like condition it is likely that his daily routine would be much more favorable for a permanent arrest of the disease. To provide a means for ex-patients to continue guarding their health, the establishment of agricultural and industrial colonies are recommended.

It has been realized that the agricultural colony alone will not be sufficient, because the urban dweller has little inclination to till the soil. Work in factories as well as clerical positions has been found to be compatible with the health of the arrested case so that diversified occupations must be available. The trend of opinion is directed toward the combined industrial and agricultural communities.

The main proposition offered by Doctor Pattison is the “development of industries around a community for the sake of that community, which is to be made up chiefly of arrested cases of tuberculosis among soldiers, sailors, and civilians.” Soldiers disabled for causes other than tuberculosis would not be debarred; but the totally disabled, epileptic, or mentally deranged, could not

be received. There would also be perfectly well people occupying executive positions or places in jobs such as were required to keep the processes going.

The community should be complete within itself, yet in immediate touch with neighboring villages and cities. The tract should be located within one hundred or two hundred miles of some large city, and not in an isolated corner of a far western state. The village proper should be laid out according to modern ideas of town planning to care for five hundred or one thousand population at the outset, with possibilities for expansion to 4,000. The department of health should be model in every respect, and the conservation and restoration of health would be given first consideration in the community. There would be diagnostic, pathological, and research laboratories. Every person who came to take up residence would be given a complete physical examination, including stereoscopic chest plates and biologic tests. Periodic re-examinations would make it possible to greatly reduce the morbidity and mortality rates in comparison with other industrial towns of like size. The population would be drawn largely from the sanatoriums and dispensaries of neighboring states.

Schools of the open air type would be used by all children. Special training courses would prepare men and women to give occupational therapy and pre-vocational training in sanatoriums. Another educational feature would be special post-graduate courses for physicians similar to the Trudeau school.

The author is opposed to having a government agency inaugurate such a community because of possible changes in policy due to changes in political administration. The necessary funds should be sought among the agencies that have concerned themselves with the needs of war and reconstruc-

tion, and these funds placed in control of five trustees, men of large affairs and broad vision in business and the professions. They would be comparable to the commissioners in the commission-manager form of government.

II—PRACTICAL TRAINING FOR PUBLIC HEALTH NURSES

THE recent enormous increase in the demand for public health nurses by communities large and small is taxing the available facilities for training these workers. The result is that many communities are obliged to employ improperly trained nurses, or else do without them. The National Organization for Public Health Nursing has made an attempt to meet these demands by suggesting to training school heads that the curriculum of training schools be broadened to include a course in public health nursing. Many training schools are now affiliated with social service agencies and private nursing associations and provision has been made for the practical training of some of the students.

Another field for the practical training of public health nurses is suggested by Dr. Carl E. McCombs, of the New York Bureau of Municipal Research, in the August issue of *The Modern Hospital*. The close affiliation of the hospital training school with the municipal health service is urged by Doctor McCombs as a means of providing practical training for many nurses, and incidentally will raise the standard of the health department by making it possible for many departments to obtain service which they are now unable to provide. "If proper cooperation with training schools could be effected, municipal health departments should assume the responsibility of paying the nurses in training salaries at least equal to the stipend which they receive as pupil nurses in the hospital training schools. Furthermore, municipal health departments would gain in efficiency by the very fact of becoming teaching agencies. Just as the teaching hospitals are more efficient than non-teaching hospitals, so teaching health departments would be more efficient than non-teaching health departments."

There are certain difficulties in the way of effecting such an arrangement. First, there is the necessity of readjusting the training school curriculum so that all nurses in training can receive this practical training; and, second, there is a feeling entertained in some quarters that health departments in their desire to get their work done would exploit the nurses assigned to them. It is probable that both these disadvan-

tages can be overcome by careful planning and close supervision.

III—TUBERCULOSIS IN CALIFORNIA STATE PRISONS

A STUDY of the health situation in the California state prisons at San Quentin and Folsom, with special reference to the prevalence of tuberculosis, was made from an examination of the biennial reports of the various Boards of Prison Directors published since the establishment of the two prisons in 1851 and 1881, respectively. Dr. L. L. Stanley who presents the review in the August issue of the *Journal of the Outdoor Life* adds to this his personal experience in dealing with tuberculous prisoners as resident physician of San Quentin prison.

From the very early reports of the medical directors is gleaned the fact that large numbers of prisoners died of tuberculosis, probably due to the prison sanitary conditions and to the close confinement. In numerous reports mention is made that tuberculosis carries off the greatest number of all those who die from natural causes. Indians and Spaniards were found to be especially susceptible to tuberculosis. The report made in 1895 makes mention, however, that those who died from this cause contracted the disease prior to their admission to the prison.

In 1913 a modern open air tuberculosis hospital was built on the roof of the "Old Hospital" and library building at San Quentin and was equipped with electric lights, modern plumbing, shower baths, toilets, and lavatories.

By means of thorough medical examination of every man who came to the prison many cases of tuberculosis were discovered on entrance, and open air treatment was begun at once. Complete x-ray, laboratory, and clinical tests are made to aid in the diagnosis.

IV—VARIATION IN INFLUENZA OUTBREAKS

THE first of a series of statistical studies of the recent epidemic of influenza is reported by Prof. Raymond Pearl.¹ Because of the varying medical opinion as to the properly reportable terminal causes of death of persons dying after having had influenza, the death rates from all causes have been used in the study, rather than those specifically reported as due to influenza or pneumonia. The weekly mortality statistics for the autumn of 1918 were analyzed for thirty-nine large American cities. It is shown in the first

1. *Public Health Reports*, August 8, 1919.

instance that there was an extraordinary degree of variation among the cities in this group with respect to the relative degree of explosiveness of the outbreak of epidemic mortality. The purpose of the study was to determine principally what factors had a causal influence in determining this great variation.

An analysis by the method of multiple correlation appears to demonstrate that an important factor so far found in causing this wide variation in respect of the explosiveness of the outbreak was the magnitude of the normal death rates observed in the same communities, particularly the death rates from pulmonary tuberculosis, diseases of the heart, and of the kidneys.

V—THE MASSACHUSETTS PLAN

THE general plan of organization of the state of Massachusetts for the campaign against venereal disease is outlined by Major A. N. Thomson.² The state legislature appropriated \$30,000 for one year to maintain the venereal disease campaign and in addition \$36,000 became available under the Chamberlain-Kahn bill.

A special subdivision was organized within the Division of Communicable Diseases of the State Department of Health and Major Thomson became chief of this new subdivision of venereal disease control in June, 1918. "From the beginning," states Major Thomson, "it was felt that the primary work would have to be conducted along two main lines, educational and treatment. The whole program was looked upon as a publicity campaign with the object of reaching the largest number of persons in the shortest period of time, and with the expectation of building a foundation for education regarding venereal disease."

In accordance with this policy every available means for education and publicity was made use of. The army film, "Fit to Fight," was invaluable, not only in that it imparted much valuable information to those who viewed it, but also it produced considerable editorial comment in all the state newspapers on the general problem of venereal disease control. The lecture bureau, with the cooperation of the sections on men's and women's work, was successful in reaching many thousands of men and women. In line with the general work of education an early effort was made to reach the draftee prior to his going to camp. This was done under the auspices of the Adjutant General of the state in cooperation with the Committee of Public Safety.

Other measures employed are the maintenance of free diagnostic facilities, establishment of

free treatment facilities, compulsory reporting of venereal diseases, elimination of quacks and charlatans, restrictions to prevent treatment by drug clerks, and examination and treatment of prisoners.

VI—SANITARY PRIVY PROGRESS IN NORTH CAROLINA

THE North Carolina State Board of Health³ covers in a practical manner what A. J. Warren, assistant secretary of the Board, terms "the largest single factor that is impeding the progress of health work in North Carolina and that confronts her citizens today—the disposal of human excreta."

The last General Assembly passed an act requiring every home within three hundred yards of another home to have an improved type of privy that the State Board of Health would approve. By means of a series of short articles illustrated with numerous photographs and drawings the citizens of the state are informed of the advantages and disadvantages of different types of privies together with their comparative costs.

The subjects considered in the *Bulletin* are: The state-wide privy law explained; sanitary principles of the construction of privies; types of improved privies; plans and specifications for approved privies; summary of rules for maintenance of different types of privies; economics of privy construction and maintenance; and machinery and methods for enforcing the law.

It is claimed that this issue of the *Bulletin* presents the most complete study that has yet been made public relative to the practical application of the various standards and types of privies now in use.

VII—NUTRITION CLINICS AND CLASSES

A THOROUGH discussion of the functions of the nutrition clinic and the nutrition class was presented by Dr. William P. Emerson at the recent International Child Welfare Conference held in Washington and has since been reprinted.⁴

The object of the nutrition clinic is to identify that group of under-par children who are retarded in weight and height on account of malnourishment. The under-nourished child in school generally receives no treatment for his malnutrition because he is considered well. By means of physical, mental, and social examination it is possible to make a diagnosis of the cause

2. Social Hygiene, July, 1919.

3. Health Bulletin of the North Carolina State Board of Health, July, 1919.

4. *Bost. Med. & Surg. Jour.*, 1919, clxxxi, No. 5.

of malnutrition, thus leading to its proper treatment. The simple procedure of weighing and measuring each child will identify all but the border-line cases.

The physical examination reveals an average of more than five defects for each child. The mental examination is made in most instances during the course of the physical examination when it is determined whether there is any question of mental deficiency or retardation. The home life of the child is studied by a forty-eight-hour program which includes a list of food taken during that time, his hours of sleep, work, and play, and time spent in the open air. The following have been found to be causes of malnutrition: fast eating, insufficient food, the use of tea and coffee, late hours, closed windows at night, too little time in the open air, poor hygiene, overpressure and long hours in school.

To remove the physical and mental causes of malnutrition the cooperation of the child, physician, teacher, and parent is required. This cooperation is best obtained by means of nutrition classes of not more than twenty children in each. Charts showing the weekly weight of each child are kept. Diet lists showing the amount and kind of each article of the child's diet for two consecutive days of each week are examined by the nutrition worker. The twenty-four-hour amount should be large enough for gain, usually 2,000 or more calories. The child gaining most is given a gold star and placed at the head of the class. Usually the losing child one week is at the head of the class the following week. The doctor conducts the exercise and tells each child what he is to do the following week that he may gain. He praises the children who have gained, but it is his special duty to discover the causes for loss in those who have not gained. Parents occupy the back seats and listen to the suggestions made by the physician.

Where there is complete cooperation and the essentials of health can be wholly obtained, the child should reach his own normal standard of weight in ten or twelve weeks. From 5 per cent to 10 per cent of the children present serious medical problems requiring most careful study by the physician.

During the period of treatment the children should be placed in open air or open window class rooms. Special rest periods should be observed before and after noon. Mid-forenoon and afternoon lunches should contain about 250 calories of food. Children gain faster on less food taken in small amounts five times a day than when a larger amount of food is taken in three meals. By its appeal to the imagination of the child the

class method makes him do for himself what no one else can do for him.

VIII—THE MALNOURISHED CHILD

MUCH interest is being centered by health authorities all over the country on the question of the malnourished child. Recent studies indicate a surprising amount of malnutrition among children of school age, and efforts are being made by some school and health authorities to discover the causes of malnutrition and attempt to eliminate the causative factors. According to Dr. Josephine Baker, more than one-fifth of the school children of New York City are undernourished. The percentage for the entire United States is even higher. Dr. Thomas Wood places it at from 15 to 25 per cent. Since this takes no count of the malnourished children under school age between the ages of two and seven, when malnutrition usually has its beginning, from three to six million hungry American children is probably a conservative estimate.

The Children's Bureau publication, "What Is Malnutrition," prepared by Miss Lydia Roberts, contains a very timely description of some of the causes as well as suggestions for treatment. "Many of these children are going hungry," says Miss Roberts, "because their parents cannot afford to buy a sufficient amount of suitable, nourishing food. Thousands of American families are today living on an income which does not permit of an adequate diet. But poverty is not the sole cause of malnutrition. Many mothers do not know how to spend their money to get the best return in food value, or how to plan healthful, nourishing meals for their families. Many others have not sufficient control over their children to induce them to eat the right things, and to take the sleep, and rest necessary to development. . . . They take pride," Miss Roberts points out, "in having a 'delicate' child. They do not realize that the undernourished boy or girl is peculiarly susceptible to disease, that the listless, inactive, malnourished child, who is constantly tired, who leans against the school house while his comrades play, is father to the man who is handicapped because of low vitality and a poorly developed body—is the inefficient adult, the rejected army recruit."

The nutrition clinic and nutrition class are recommended as effective means for overcoming the present widespread, deplorable prevalence of malnutrition.

AMERICAN PUBLIC HEALTH ASSOCIATION MEETS AT NEW ORLEANS

More than one hundred and fifty papers, addresses, reports of committees, and discussions on as many phases of public health problems will be presented by speakers at the forty-seventh annual meeting of the American Public Health Association, to be held at New Orleans, La., October 27 to 30, 1919.

The first general session will be opened by the Governor of Louisiana and the Mayor of New Orleans. Their speeches of welcome will be followed by the presidential address of Lee K. Frankel. Sir Arthur Newsholme, head of the Local Government Board of Great Britain, will address the session on "Historical Development of Public Health Work in England."

The second general session will be devoted to a symposium on malaria. Those taking part in the discussion include several members of the United States Public Health Service and the International Health Board, among them Major General W. C. Gorgas, U. S. A., retired, director of yellow fever control, International Health Board, Panama; Wickliffe Rose, general director, International Health Board, New York City; and Dr. J. A. Ferrell, director for the United States, International Health Board, New York City.

The third general session is given to a symposium on influenza. Health officers from several cities and states will read papers and the reports of various committees will be presented.

At the fourth general session Dr. C. J. Hastings, medical officer of health, Toronto, Can., will read a paper on "Generalized Public Health Nursing in Toronto." The installation of new officers will take place at this session.

The sections which have arranged programs include the Section on Public Health Administration, the Laboratory Section, the Sociological Section, the Section on Industrial Hygiene, the Section on Vital Statistics, the Section on Food and Drugs, the Sanitary Engineering Section and the Section on Social Hygiene.

Correspondence concerning the various sections should be addressed to the program chairmen, as follows:

Section on Public Health Administration: William F. Cogswell, M.D., secretary and program chairman, Helena, Mont.

Laboratory Section: A. B. Wadsworth, M.D., vice-chairman and program chairman, 278 Yates Street, Albany, N. Y.

Sociological Section: Walter H. Brown, M.D., secretary and program chairman, 280 Glenwood Avenue, Bridgeport, Conn.

Section on Industrial Hygiene: A. J. Lanza, M.D., secretary and program chairman, 805 G Street, Washington, D. C.

Section on Vital Statistics: Richard Lappin, secretary and program chairman, Bureau of the Census, Washington, D. C.

Section on Food and Drugs: Harry W. Redfield, M.D., program chairman, Bureau of Chemistry, Washington, D. C.

Sanitary Engineering Section: Paul Hansen, program chairman, Illinois State Board of Health, Springfield, Ill.

Section on School Hygiene: Julius Levy, M.D., program chairman, Department of Health, Newark, N. J.

The program of the Section on Public Health Administration will be opened by a symposium on the topic "The Privy as a Public Health Problem," which will be the subject of a paper by L. L. Lumsden, Assistant Surgeon

General, United States Public Health Service. "Public Health Administration" is announced as the subject of a symposium under which several public health officers will offer papers and discussions. There will be a round table discussion of the question of appropriations for health work. The following topics will be considered: "How to Obtain Adequate Appropriations for Public Health"; "What Can We Do to Bring About Reasonable Compensation for Health Officers?"; "Experiences of Health Officials in Obtaining Appropriations."

The tentative program of the Section on Industrial Hygiene is as follows:

PROGRAM OF SECTION ON INDUSTRIAL HYGIENE OF AMERICAN PUBLIC HEALTH ASSOCIATION

Monday, October 27, 2:00 p. m.

Address of Chairman. Need and Method of Coördinating Federal, State and Local Health Agencies in Promoting Industrial Hygiene.

A Program for Organizing and Coördinating Industrial Clinics. T. GRIFF MILLER, M.D., University of Pennsylvania, Philadelphia, Pa., Utilizing the Out-Patient Department for Industrial Clinic Work. WADE WRIGHT, Massachusetts General Hospital, Boston, Mass.

Utilizing Records of Plant Medical and Surgical Departments for Furthering Plant Hygiene. BERNARD J. NEWMAN.

Placement and Replacement of Employees on the Basis of Physical Examinations. HARRY MOCK, M.D., Chicago.

Classifying Employees and Increasing Production by Improving Their Physical Condition. WM. J. CURRY, M.D., Holyoke, Mass.

Tuesday, October 28, 9:00 a. m.

Fundamental Factors in Plant Hygiene. DON LOWE, M.D., Akron, Ohio. Health Hazards of Non-Poisonous Dusts. EMERY R. HAYHURST, M.D., University of Ohio, Columbus, Ohio.

Health Hazards of the Dye Industry. C. E. FORD, M.D., New York, N. Y.

Systematic and Dermatic Effects from the Use of Cutting Oils and Compounds. H. D. PEASE, M.D., Lederle Laboratories, New York, N. Y.

Industrial Fatigue: Present Status of Investigations. FREDERIC S. LEE, M.D., New York, N. Y.

Wednesday, October 29, 9:00 a. m.

Special Health Hazards of Women Industrial Workers. LILLIAN ERSKINE.

The Insurance Company and Industrial Hygiene. AUSTIN D. REILEY, New York.

The Industrial Physician and Welfare Work. W. IRVING CLARK, M.D., Worcester, Mass.

The Part Played by Community Insanitation in the Incidence of Industrial Diseases. ROGER PERKINS, Cleveland, Ohio.

Legislative Standards in the Field of Industrial Hygiene.

The Laboratory Section announces a list of thirteen scientific papers. The tentative program of the Sociological Section includes symposiums under the following subjects. "The Relations of Living Conditions to Health"; "The Influence of Industrial Relations Upon Health"; "Symposium on Community Medicine."

The reports of various committees on institutional, hospital, and health department statistics and registration will be presented in the Section on Vital Statistics. The recent studies of some of the large insurance companies will be described and reviews of influenza mortality statistics will be given.

The Section on Food and Drugs includes in its program several papers discussing the problem of drug addiction in the light of current activities in this field of public health work. Another subject of current general interest which this section will discuss is the matter of meat inspection and cold storage systems.

The full program of the conference will be printed in the October issue of the *American Journal of Public Health*.

The *Survey* for September 6, 1919, gives a first hand view of the results of the war upon the physique of the German people from the personal observations of Miss Jane Addams and Dr. Alice Hamilton, who recently spent some time in Germany in connection with the English and American Society of Friends. The report presents the unhappy condition of women and children, particularly, as a result of the hardships of war.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., Editor

THE HOSPITAL SOCIAL SERVICE QUARTERLY

THE publication of the *Hospital Social Service Quarterly* which began in February of this year adds a new and quite indispensable journal for physicians, nurses, and hospital workers. It is the organ of the Hospital Social Service Association of New York, and will be the clearing-house for the newly organized Association of Hospital Workers.

There is perhaps no field that involves a wider range of activities of constructive tendency than that of the hospital social service worker. Serving as an intermediary between the physician, the dispensary, the hospital, and the home, it becomes the function of this service to search out and make right the hygienic conditions of the home, and to put into operation such practices on the part of the patient and his family as will make effectual and permanent the results of medical service and hospital care. It is gratifying to learn that this body of highly trained workers now has a channel for the discussion of their problems, and for collected reports of the important data they gather.

We reproduce here the announcement of the *Quarterly* in the form of an editorial by Michael M. Davis, Jr., one of the contributing editors:

"Twelve years ago, Hospital Social Service, an infant amid the growing family of new public health movements, needed justification for being born. To-day, Hospital Social Service is recognized by all first rank medical institutions in this country. The movement has become prevalent and even fashionable, so that one of the chief dangers is that its form may be too widely copied without its spirit and substance.

A new organ for this movement, super-added to the thousands of existing periodicals, may require justification. The number of hospital social

workers is increasing. The social problems and technique through which they wrestle, the ideals towards which they strive, are many and various, and seem to need some mouthpiece of their own making. The first stage of any movement is of the pioneers. During that period a reason for being must be established. Hospital Social Service has passed successfully through that period. The second stage is that of formulation of principles and of methods of practical application. Through that stage we are now passing. For the successful formulation, dissemination, and practical application of principles and methods, in many and many hospitals and dispensaries of this country, Hospital Social Service needs a national organ, which we hope this will be.

"We want the *Quarterly* to be useful to the members of social service departments, to their staff physicians, superintendents, and trustees. We want it to be a forum for the expression and exchange of opinions, for telling about things that have been done, and other things that are planned or dreamed. We hope that the *Quarterly* will be of practical aid in the routine of daily duties; we trust that it may now and then show the way to some sunny heights of inspiration. The war has brought forth the spirit of service in wonderful outpouring. The ending of the war will divert many streams of that spirit into channels of peace, and turn into various forms of social service personalities who, unknown to us and often to themselves, were waiting for the opportunity which the war gave them to blossom into usefulness and power. Hospital social service cries out for more workers. It has much to offer to such personalities. We hope that the *Quarterly* will not only aid those already enlisted under the banner of hospital social service, but will also help to rally and to train the recruits and the captains of the future."

EDITOR.

THE PHYSICIAN AND HUMAN CONSERVATION

BY JAMES H. McBRIDE, M.D., PRESIDENT, AMERICAN NEUROLOGICAL ASSOCIATION, PASADENA, CALIFORNIA*

ON this occasion, when you might expect me to speak in the line of the specialty, the subject of human conservation may seem rather remote. It has none of the interest of novelty and has no problems for the laboratory except that oldest of laboratories in which the problems of life are being solved. The subject is familiar, but life is made of familiar things of which we find it necessary frequently to remind ourselves, and experience teaches that it is much more profitable to be reminded than to be instructed.

The existence of so much disease that is preventable, the increasing amount of insanity, feeble-mindedness, and imbecility that are usually evidence of individual and family degeneracy, the poor showing of our young men in our recent war conscription, and other conditions of bad import too numerous to be recounted, have led me to consider at this time the subject of disease prevention and human conservation. This can only be a suggestion, as there is no time to frame an argument; it can only be a hint of the facts, not a presentation of them.

My subject is not so remote from our specialty as it may seem, for we are interested in disease and its prevention, and conservation deals with both. The great merit of prevention is that it begins at the source, and that is the place to stop trouble. To bring a dying man back to life and health is more attractive and picturesque than the homely process of preventing him from being sick. Just a plain healthy man may be useful, but he is not necessarily interesting. Society, however, prefers that a man should first be healthy.

We have wasted a vast amount of human material in the past through mere neglect; and we have wasted as much more through being satisfied to care for the wreckage, without considering how to stop the supply. The result has been that while we have been building hospitals and asylums, disease has been increasing with the

THE SPAN OF LIFE CUT SHORT

Physical education is the only real education. Bad mental training and neglect of the body spell retardation, mental stagnation, physical disability, and incompetence. Health is achieved by active effort. The physician's best service is in working out the right regimen for his patient.

To be lively at seventy or an octogenarian at forty is largely a matter of choice.

Let scientists come forth from their laboratories and tell us how to live. The curative arts and specialties are but a partial service, and are a poor substitute to offer in place of preventive work.

vation. Resolutions meaning presidential addresses, unassisted by organized effort, will probably get no farther than to illustrate the infant death rate of good intentions.

The physician witnesses the growth and the unmaking of men in a way that others do not. He sees that simple, wholesome living produces healthy and effective lives. He sees untrained and, therefore, incompetent men and women struggling in a bad environment, becoming prematurely old-octogenarians at forty. He sees children who are underfed and dwarfed in mind and body repeating later in their own incompetence the incompetent lives of their parent.

We doctors have in the main been carrying on an ambulance service in the past; that is, we have been picking up the injured. It has been a great work, unequaled by any other human agency. It has, however, been a partial service, in that it has dealt mainly with results and has achieved relatively little in the way of prevention. This was unavoidable as it has been only within the past few decades that our knowledge of the obscure sources of many diseases and degeneracies has permitted the formulation of a general plan for health conservation that would accomplish such results as are today possible.

A conservation plan should be much more than one to prevent contagious diseases, or even to prevent all disease. It should be a plan for human reconstruction in the broadest sense, not

growth of population, so that the age-old "pestilence that walketh in darkness," in the form of devitalizing conditions, has been breeding disease and degeneracy and pouring its victims through the gates of charity.

There is much unused power in the medical profession in this country, some of which might surely be devoted to educating the public to understand the importance of human conser-

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*Presidential address before the American Neurological Association, Atlantic City, N. J., June 17-18, 1919.

alone for cripples, or for defectives, but for rebuilding the bodies of all the people, beginning with childhood and not necessarily ending with completed growth. Such a plan should be administered by the government. The business of the profession will be to secure the adoption of a plan. It will require the united efforts of physicians acting in every community to educate the people and show them what human conservation means. Unless the general public can be convinced of the necessity for it, the government will be slow to put a constructive program in force.

The large number of our young men who could not pass the examination for the army during the recent war furnished convincing evidence that there is in this country a great deal of poor physical development. It is, too, quite possible that some defects were overlooked but certainly enough were exposed to show the physical vigor of Americans is not what it might be or what it ought to be. The fact that so much degeneracy was shown to exist in persons of the ages of those examined would indicate that there are others older and others younger who are equally at fault physically. The humiliating revelations of these army examinations are an admonition to the country to see that the boys and girls of our day have the training that will enable them to meet successfully the tests of active life.

There is fortunately a growing interest in the medical profession in preventive measures which is reflected in activities of various states and in that of the general government. The health work in cities, the community nursing, the follow-up work of dispensaries and hospitals, the new interest in housing—one of the biggest problems—these and many other activities are educating the public for the comprehensive program that will some day come.

National Health Plan

We have also in recent years been moving toward a national health plan in the activities of the marine hospital service, the work of the Surgeon General's office, and the annual health lectures provided by the American Medical Association. The next step should be a comprehensive plan for the entire country. It is not possible nor necessary to suggest a scheme here, but if the profession could induce Congress to appoint a medical commission to investigate the need for a health program, such a body could easily produce evidence of the necessity for it and secure action.

There is no finer chapter in medical history, nor one that is more significant, than that which records the first achievements in prevention of

disease. When the genius of a country doctor connected the milk-maid with the cow, and devised prevention by vaccination, he took the first step toward doubling the usefulness of our profession by showing that some diseases may be prevented. What Jenner demonstrated was not only a matter of science but a social fact of great importance. The prevention of disease earlier received an impetus from the old Venetians when they put the word quarantine in the dictionary. They might have waited until the plague had developed in the city and then have administered their remedies; they preferred prevention.

Social Loss From Disease

Eleven thousand young men applied for the Naval Reserve in 1913 and only 316 were found physically fit. It has been said that these tests are severe. They are. Should the United States lower its standard to fit our degenerate youth or should we raise the physical level of our manhood? These tests are probably not higher than those any normal young man should be able to pass.

The annual social loss from disease is equal to the destruction of a great war. This is all the more regrettable, because most of it is preventable. It is a serious thing that there are more than 500,000 deaths from preventable diseases in this country every year, 400 times the number that were lost on the Titanic, a tragedy that shocked the world. Three hundred thousand babies die before they are a year old, a loss of which the figures are a poor measure. More people die before the fiftieth year in the United States now than in the time of our grandfathers, though in several European countries more people live beyond the fiftieth year than was the case two generations ago.

Ripley says that of 100 Jewish babies born in Massachusetts, fifty will be alive at the end of seventy years. Of 100 babies other than Jews born in Massachusetts, fifty will be dead in forty-seven years. Why is there this difference of twenty-three years under essentially the same environment? Is it due to a more intelligent care of health and a better scheme of life?

There are said by school authorities to be 500,000 feeble-minded children in the public schools of this country, and it is probable that there are several times that number in the adult population. These morons breed true to the laws of degeneracy in families of ten and fifteen children. Where will this country find room for the 2,000,000 or 3,000,000 degenerates of this class that we will have two generations from this time? Has this Association ever called public attention

to the danger that the feeble-minded may pollute the healthy blood of this nation?

Man seems to be the hardest of all animals to kill. Human beings will survive mistreatment that would kill pigs and cows. If a man kills another with an ax or a pistol, he is punished; if he should kill a man with a slum house, he is not punished, though the men who rent slum houses are so much more dangerous than men with axes and pistols are relatively harmless creatures. The owners of slum houses help to fill our hospitals with sick and insane, and in addition they furnish a large supply of degenerates who prey on society. A general plan of health conservation should remedy these and other like conditions that cause much of the disease we see in public hospitals and much of the degeneracy that we meet outside of them. These cases of disease are the natural drift from such sources as bad housing and its many attendant evils that are spreading like an epidemic not only in cities, but on farms and in villages. Such insanitary homes with their inadequate care of children are the causes of much stunted growth, incompetence and disease. Here, also, only a comprehensive program of health conservation can correct these evils.

No discussion of this subject could properly omit mention of our educational system: while the Government plan of health conservation could not be made to apply to education in the states, it could by suggestion and advice make health conservation in all the states the first consideration in education. Indirectly, therefore, a government plan would determine that the states did their duty.

Health Conservation in Public Schools

If we are to prevent physical degeneracy, or rather if we are to stop that which is now going on, we must begin with the children in the public schools. Their health should not only be guarded, but the training of their bodies is quite as important as the training of their minds. This should appeal to the intelligence and public spirit and the essential loyalty of every physician, less, however, as a medical practitioner, than as a man who understands or ought to understand the importance of medical sociology. Every man and woman who walks the streets today is essentially a product, physically and mentally, of our schools. Has our educational system been a success—if not, why not?

The power and much of the genius of a nation depends on the health of its citizens, and the human preparation for effective living and national achievement should be made chiefly

during the growing period. These little folks who are the raw material of our future citizenship are naturally outdoor animals. Their mental activity is founded on physical activity. Our schools will never be organized on the proper basis until we recognize and put in practice the fundamental principle that physical training should be the foundation of mental training.

Every medical man should have an immediate interest in existing methods of education, especially in the conditions under which those methods are applied; and of all physicians the specialist in nervous and mental diseases should have the greatest interest. Any one of the younger specialists of this Association could go into any public or private school today and select with an approximation to accuracy a pretty large group of pupils who will probably be his patients or his contemporaries' patients fifteen or twenty years from this time. He will need to interpret the significance of the nervous attitudes of the children, the instability of nerve centers shown in the facial expression and in the general irregular muscular movements, and other familiar signs of imperfect development. One sees in these cases the results of half starved nerve centers and neglected muscular activities, struggling in vain for normal expression in a turmoil of wasteful effort.

Hundreds of thousands of young people are yearly going out into the world unprepared for life because their only training in school, if training it may be called, has been a system based on word symbols. There is little or no discipline for young people in the unrealities of books; they cannot connect them with life, for to them life is in doing. The failure that so many of them experience in after years is also due, in large degree, to a lack of proper physical development. From the bad mental training and the neglect of the body there results much retardation, mental stagnation, and physical disability, which make incompetents of many and invalids of others, while a few, through the miracles that nature daily performs, get into the small class of successful people.

The commission appointed by the National Educational Association says in a recent report that it would focus secondary education on the great social objectives, and it places the health of the young at the head of the list. This is encouraging, for our teachers as a class have been slow to recognize, if indeed they do recognize, the important fact that health and sanity and success in life depend more on good physical development than on all the book knowledge that has been or can be packed into the healthily rebellious minds

of the young. It is true that manual training and kindred instruction are given in certain schools, but have not reached the great mass of boys and girls of this country.

It is a fundamental fact in human development that young people have a positive hunger for doing things, for learning as the race learned, to *think by doing*. The greatest discovery man has made to date was the first tool he fashioned. It was the chief means of the early development of the race, and so deeply is this primitive talent planted in the brain that very psychiatrist knows that the ability to do things is one of the last faculties lost. In teaching the young how to use the hands, the teacher is leading them over the long way the race came; the teacher helps them to short-circuit the race process. In this way even a dull boy can be taught to do some one thing well, and such training will save many from the failure that has condemned thousands to insanity, crime, or pauperism.

Any physician who has seen much of the insane in public institutions must have been impressed with the large number of this class whose mental disorder, where the basic cause could be explained, has been chiefly due to the fact that they had never learned to do any one thing well. The dullards and incompetents that come from our public schools would, if they could speak, tell a tragic story of the failure of the educational side of our social system.

Medical Profession and Health Conservation

It is an important truth that nothing stands alone in this world, not even a medical association. We go up or down together. We are here today not solely because we are physicians, but also for the reason that society created us as a profession because it needed us, and we are therefore always serving its purpose. Our most private work is really a social and public work, so that in all we do we are going on the errands of society. Each one of us is an essential part of this moving human order that keeps society together and holds humanity to its sober tasks.

The world is passing into a new era. Though wars cease and the harsher strifes of men may disappear, the old struggle will go on under other forms which in the long run will be quite as destructive. Again the final test is the individual test, for in the last analysis the reserve power of a nation rests on the ability of men and women to endure stress.

We cannot say that race decay has not already begun among the people of this country. There is much evidence that it has begun. No race nor nation, not even our own, can ever be free from

the conditions that produce degeneracy. These are inherent in every form of human organization. They are all the more dangerous for being subtle and obscure in operation. They may act through generations lowering the resistances of individuals and families, and in widening circles a nation becomes involved.

Every medical association and every society should do systematic educational work with the public in the interest of a human conservation program. Medical men should not be willing to leave to others the credit or the task of leading this movement, which is specifically a social duty of physicians. The profession owes it to society and to its own character as a scientific and progressive body to demand that the health and physical vigor of the men and women of the nation be cared for by the nation, and raised to the highest standard. For this, or any association of specialists, to take official notice of this subject, I realize would be a departure from custom. Departures from custom, new activities, are generally highly beneficial. They furnish stimulating experiences and a new form of spiritual exercise that is needed by the best of men and even by associations. They take the individual into bracing altitudes; they have been tonics to the social body in many an invalid period. All advance has been due to departures, that is, to new views, and new ideals that in all ages have set men's thoughts in higher and better ways. It has been such departures that have roused the inquiring, pioneering spirit that has led to great discoveries and kept men moving toward new horizons.

In this period of industrial and social reconstruction, when all interests are becoming intertwined, when human interspaces grow smaller, and new relations create problems that change our views of life and society, it is necessary that the medical profession also make certain readjustments, that it annex human interests to its older activities, if its members are to maintain its fine traditions and keep step with social progress.

All professional life is beset by the danger of a certain bias which habits of work in any special line tend to create. We humans are made of malleable material and we are likely to be moulded to a rather definite shape by our occupation all the more likely because the process is unconscious. It is not easy to resist the common tendency to become set in certain habits and ways of thinking, with the result of lessening of general interests, a limiting of intellectual curiosity and growth, which cause many men to atrophy on some of the best sides of character.

Society needs now, and needs more than ever before, men who answer to that severest test of character—the ability to grow. Not the linear growth that is in the direct way of men's daily work and which is a relatively easy process; men are needed who are capable of lateral growth, who recognize the new human border-land of interests that increasingly demand attention. It needs men who take the social view of their work,

who understand the individual and social value of life and see the importance of increasing that value. The people of this country do not appreciate the need of human conservation; they have not been told as only doctors could tell them that it is necessary and urgent. Shall we wait and allow society finally to lead, or shall we take the wider view of our mission, and become the pioneers of a great constructive movement?

CONVALESCENT CARE

BY MAURICE B. HEXTOR, EXECUTIVE DIRECTOR, FEDERATED JEWISH CHARITIES, BOSTON, MASS.*

AS FAR as the writer knows this is the first time the National Conference of Jewish Charities has considered the subject of convalescent care. The lack of discussion of the subject and the paucity of facts which we have been able to secure by correspondence is a true reflection of the degree to which organized effort has failed to provide systematic care for the convalescent. While after-care for the tuber-

culous patients has been discussed for a number of years, convalescence as an all embracing topic has received scant attention. Indeed, the chairman of this section on health expressed surprise at the existence of the Convalescent Home in Cincinnati as an integral part of the health service of the United Jewish Charities.

It is true that most of the larger charities provide convalescent care in certain selected cases. In a more or less desultory fashion most organizations provide country rest after severe illness. However, unless the community has provided facilities for convalescent care for twelve months of the year through a well-defined bureau or through an institution, it cannot be said that such a community recognizes the importance of convalescent care as an aid to rehabilitation. The presence of such an institution or bureau focusses upon this particular sphere of activity the attention of those who support the institution, and induces continuous requests for this care by that part of the community for whom the institution

This is the story of how little children in ill health and adult convalescents are guided and helped along the up-hill road to complete recovery. It had been the custom of the United Jewish Charities to send children to the country for a vacation in the effort to overcome malnutrition, anemia, and cognate conditions. The necessarily brief stay accomplished practically nothing. Three years ago those in authority ventured upon the policy of sending such children to a convalescent home for three or four months. While there they attend school. The experience thus far gained attests to the practical utility of the Convalescent Home.

has been established. Doctor Moss, chairman of this section, writes that from the inquiries he recently sent to 110 cities he found but two communities which have convalescent homes. This is an understatement of service of this kind. It will be interesting to scan the field of convalescent care as at present covered by Jewish endeavor.

We have found seven homes for convalescents in five cities which are,

in the order of their establishment, as follows: (1) The Solomon and Betty Loeb Home for Convalescents, New York City; (2) the Jewish Convalescent Home, Cincinnati; (3) Mirium Convalescent Home, St. Louis; (4) Rest Haven for Women and Girls, and (5) Rest Cottage for Men and Boys, Chicago; and (6) the Frauen Verein Convalescent Home, Boston.

The Solomon and Betty Loeb Memorial Home for Convalescents in New York City, was founded in 1904 and was opened for the reception of patients in July, 1906. It lies within convenient reach of New York City.

The Home possesses about seventy acres of ground on which have been erected a central administration building; three cottages, one each for men, women, and children; and a fifth residential cottage is held in reserve for special emergencies. The present total capacity of the Home averages one hundred beds, and it is kept open throughout the year. Patients more than fourteen years of age who are able are expected to pay \$5 per week; those between the ages of five and fourteen, \$3 per week.

*Read before the National Conference of Jewish Charities, Atlantic City, N. J., May 30, 1919.

When the committee on admissions is satisfied that a patient is unable to pay such a sum, the charge is remitted in whole or in part. The railroad fare, however, must be paid by the patient. Applications accompanied by a medical certificate are received either from those recently discharged from hospitals, or from persons who are treated by private physicians. In all cases, however, candidates must be examined by the admitting physicians of the Home. These examinations are conducted in the United Hebrew Charities Building in New York City.

The Home does not accept pulmonary consumptives, persons still suffering from acute infections, or afflicted with contagious infections or loathsome diseases, or those suffering from hysteria, epilepsy, or advanced nervous disorders. Children under five years are not admitted except when accompanying sick mothers and by special permission of the Board. The institution is non-sectarian.

There is a well defined program of after care for the patient leaving the Home. The discharged patients have been organized into an alumni association, and hold regular meetings. Since 1915 male applicants have been referred to a different convalescent home nearby, thus reserving the home for little children, girls, boys up to the age of sixteen, and women; the result is a quieter atmosphere much more conducive to convalescence. Although the Home is open to patients treated by private physicians, most of such applicants are refused. During 1915, the last year for which we could secure a report, of the 1,963 patients referred by private physicians only 105 were admitted.

Jewish Convalescent Home, Cincinnati

The second convalescent home to be established was the Jewish Convalescent Home in Cincinnati which opened its doors in the summer of 1913. For almost ten years previous to that time the United Jewish Charities, of which the Convalescent Home is an integral part, had been sending patients in selected cases to country homes for a convalescent period. It was found, however, that this method did not bring maximum results: difficulties in finding homes, proper supervision of diet and rest, and proper medical supervision are among the difficulties. The Home in Cincinnati has a capacity of seventy patients and is situated in the suburbs on the hill-tops. The same restrictions are made as to causes for which patients are admitted as in the Loeb Home in New York. All applicants come through the health department of the United Jewish Charities, and only patients of means and those re-

ferred by private physicians are excluded. When originally opened, the stay of patients was limited to only two weeks with a single possible extension of two weeks. It was soon found that this duration of stay was not sufficient and, al-



The Convalescent Home of the United Jewish Charities at Cleveland, Ohio. To this Home are sent children from the public schools who are found to be suffering from malnutrition, anemia, and cognate conditions. They remain at the Home until their physical condition approximates normal. While there they attend public school.

though the rule has never been abrogated it is honored in its breach. For several years the Home was not utilized to its full capacity during the months from October until May, and efforts were therefore made to keep the institution full.

Through the department of school hygiene were found a large number of children suffering from malnutrition, anemia, and cognate conditions. It had been custom of the United Jewish Charities to send children to the country for a summer vacation period, but it was found by follow-up and



The Frauen Verein Home of Boston, maintained by the United Jewish Charities for convalescent women. The Home accommodates about twelve women at one time.

research that such a brief stay accomplished practically nothing. Three years ago that organization ventured upon the policy of sending such children to the Convalescent Home for a period of from three to four months. The children are

kept there until their physical condition approximates the normal. While there, they attend public school.

TABLE I

AVERAGE PERIODS OF CONVALESCENT CARE AT THE CINCINNATI HOME

	Number of patients	Per cent of all patients
Duration of stay (No. of weeks)		
Less than 2 weeks.....	605	35.2
From 2 to 4 weeks.....	642	37.4
From 4 to 8 weeks.....	372	21.6
From 8 to 12 weeks.....	61	3.6
From 12 to 16 weeks.....	14	0.9
From 16 to 20 weeks.....	6	0.4
From 20 to 24 weeks.....	8	0.5
From 24 to 28 weeks.....	8	0.5
Total number of patients cared for.....	1,716	

TABLE II

CLASSIFICATION CAUSES FOR ADMISSION, 1915-1919

Abortion	167
Adenitis, cervical	2
Anorexia	1
Anemia	348
Appendicitis	25
Arthritis	1
Asthema	1
Asthma	47
Bladder Trouble	1
Blood Pressure (high)	1
Boils	5
Bronchitis	14
Cachexia	2
Confinement (post)	34
Cystitis	1
Debility	265
Dementia Praecox	1
Diabetes	3
Flat Foot	9
Headache	1
Heart Cardiac, unclassified	35
Mitral stenosis	1
Hemiplegia	1
Hip Joint Disease	1
Infantilism	1
Malnutrition	169
Miscarriage	29
Nephritis, chronic	1
Neuritis	1
Neurasthenia	57
Optic Atrophy	29
Otitis Media	3
Partial Trouble	5
Pemphigus vulgaris	6
Pleuritis	2
Pregnancy	1
Psychasthenia	1
Rachitis	1
Rectocele	1
Rheumatism	3
Sciatica	1
Scoliosis	1
Senility	7
Stomach Trouble	10
Tuberculosis Glandular	1
Suspected	3
General Convalescence	316
Total number cared for.....	1,716

TABLE III

CONDENSED CLASSIFICATION OF DISEASES CARED FOR FROM 1915 TO 1919

Anemia	348
Cardiac Disorders	35
Dermatologic Diseases	1
Debility, general	434
Eye, Ear, Nose and Throat	4
Medical Cases, general	70
Neurological Patients	60
Obstetrical Patients	69
Respiratory Diseases	56
Surgery General	324
Gynecological	309
Orthopedic	6
Total	1,716

TABLE IV

TABULATION OF GAINS IN WEIGHT BY AGE GROUPS

Age	Less than	5 to 10	10 to 15	over	Total
	5 lbs	lbs	lbs	15 lbs	
Less than 2 years.....	23	..	1	..	23
Less than 2-6 years.....	151	5	1	..	157
Less than 6-10 years.....	339	16	3	1	359
Less than 10-17 years.....	249	67	10	2	328
Less than 17-22 years.....	43	46	10	4	103
Less than 22-31 years.....	126	99	30	5	260
Less than 31-40 years.....	80	83	30	5	198
Over 40 years.....	91	62	28	9	190
Total	1,102	378	112	26	1,618
Number showing loss in weight.....				98	

We have developed norms for Jewish children from two sources: (1) by interpolation from the anthropometric measurements made by Professor Boaz for the United States Immigration Commission (Volume 38); (2) through standards obtained by examining an unselected group of about 1,000 Jewish children in the spring of 1918.

The Convalescent Home has been also used quite extensively for children sent to the hospital for the purpose of having their tonsils and adenoids removed. These children are transferred directly from the hospital to the Convalescent Home. The admitting physician of the Convalescent Home is located at the Wilhelm and Gette Beckman Dispensary operated by the Jewish Charities. He is likewise the physician at the Home so that continuity of supervision is secured.

Other Convalescent Homes

The Mirium Convalescent Home was established in St. Louis in the fall of 1913. Originally the Home was open but eight months out of each year. In the fall of 1918, however, it was decided to keep the Home open for the entire year.

There are also two homes in Chicago, Rest Haven for women and girls, opened in 1912, and Rest Cottage for men and boys, opened in 1913. They have a combined capacity of forty-five beds and in addition the Chicago Jewish philanthropies utilize a non-sectarian home for women and children which has a capacity of thirty-two beds.

The Jewish Home for Convalescents at Grand-View-On-The-Hudson, was established by the Federation of Roumanian Jews of America, in June, 1916, under the name of the Solomon Schechter Memorial Jewish Home for Convalescents. Lack of adequate funds precluded the installation of necessary facilities for maintenance during the winter months and the home closed its doors for the winter almost immediately following its foundation (in September, 1916). Application for incorporation was made to the State Board of Charities in February, 1917, which was granted under the name of Jewish Home for Convalescents. The institution was reopened in June, 1917, and it is the hope of the Federation of the Roumanian Jews to secure its continuous existence.

The Home is non-sectarian and cares for con-

TABLE V	
PROPORTION OF CHILDREN KEPT AT NORM	
Number of children kept at norm.....	363, or 76.1 per cent
Number of children requiring further treatment.....	114, or 23.9 per cent

TABLE VI

DEVIATIONS FROM NORMAL WEIGHT IN 114 CHILDREN RETURNED FOR FURTHER TREATMENT

36, or 31.5 per cent, were above the normal weight for age
72, or 63.2 per cent, were below the normal weight for age
6, or 5.8 per cent, were normal weight for age

valescents of both sexes between the ages of sixteen and sixty. The Mosaic dietary laws are strictly observed.

The institution has a capacity of 124 beds but the census, because of inadequate funds, has never been near the full capacity. Thus on January 8, 1918, there were about 7 patients. According to the daily record, the minimum number of patients cared for at the home on any one day since June, 1917, is 5; the maximum is 19. Rates in the ward are \$5 to \$7 per week; for private rooms \$10; patients unable to pay are given free care. Of the 211 inmates from June 17, 1917, to December 31, 1917, 164 were free patients. Applications were referred by eighteen hospitals, one clinic, one settlement, one agency for the tubercular and by private individuals. The nominal length of stay is two weeks but care for periods ranging for two to eight weeks is frequently extended on the recommendation of the matron in charge of the institution and the visiting physician.

Restrictions in Classes of Patients

Applicants excluded from admission are cardiaes as well as those suffering from tumor, tuberculosis, contagious diseases or those requiring surgical attention as diagnosed by one of the examining physicians of the institution.

There is also a small convalescent home operated by the Frauen Verein of Boston. This Home is only for convalescent women, and during the year of 1917 it cared for 122 patients. The capacity is about twelve.

It will be interesting to recount some of the work and results of the Convalescent Home in Cincinnati. To this end we have analyzed the cases handled at the home for the past four years.

The accompanying table (Table I) shows the number of patients at the Home during the period as well as the duration of their stay. We realize that the data presented is extremely scanty, but we are still in the experimental stage.

It can be seen from Table I that almost two-thirds of all the patients remained in the Convalescent Home for more than two weeks, the length of stay contemplated when the Home was opened. Almost one-fifth remained in the Home for eight weeks and almost 6 per cent for a period of from eight to twenty-eight weeks. The total number of patients handled during the period under survey was 1,716.

The following table shows the causes for which patients have been sent to the Home.

It can be seen from Table III that at least half of the patients at the Convalescent Home were sent there for preventive work concerning such causes as anemia and general debility, rather than

as post-hospital cases. The general gain in weight experienced by the various age-groups is worked out in Table IV.

It can be seen from Table IV that of the total 1,716 patients only 98, or 5.7 per cent, showed loss in weight. It is evident that by far the majority of the patients gained five pounds, 1,102, almost 70 per cent, falling within this category. As was to be expected, the largest proportionate gains are shown in the age groups 17 to 31.

There is quite an insistent discussion as to whether patients discharged from the convalescent homes relapse into their former conditions, more particularly with reference to the cases of anemia and general debility. For this reason analysis has been made of all data relating to recurrent cases sent to the Home. It has been mentioned that special stress has been placed on the convalescent care of children under sixteen years of age. During the period of this survey 477 children in this category have been cared for. It becomes apparent from the tabulation (Table V) given that more than three-fourths of all the children cared for maintained the gains achieved by their care at the Home.

A more minute study was made of the 114 children who required to be returned to the Home for special care and the results are developed in Table VI.

The analysis presented in Table VI has given due allowance for the changing normal weight due to increase in age. It shows that almost two-thirds of the children who had to be returned for further treatment deviated more from the normal after having been discharged from the Home.

Promotes Community Betterment

The Convalescent Home, properly functioning, should be utilized as an integral part of both the health work and the relief work of the community. It may be stated here that the scheme under which the United Jewish Charities of Cincinnati operates, which vests in the superintendent, the executive authority of all the constituent bodies of the Federation, makes possible proper planning for all of the organizations. Our experience tends to the conclusion that convalescent care accomplishes most when emphasis is placed upon the side of prevention.

There is a corollary of this particular phase, corroborated by the experience of the Loeb Home in New York as well as the Convalescent Home in Cincinnati that when emphasis is placed upon this particular side of the problem by sending large numbers of children to the convalescent home, the home rapidly ceases to become a place

to which true convalescent adults can be sent. Even anemic children are noisy and possibly we should contemplate the establishment of a separate institution for these children and maintain the Convalescent Home for its original function. In conclusion, may we once stress the necessity of including in the scheme of community enterprise a Convalescent Bureau or Home to insure a proper emphasis upon this particular phase of health work?

LAW FOR THE DOCTOR

BY LESLIE CHILDS, ATTORNEY AT LAW, INDIANAPOLIS,
INDIANA*

Physician's right of recovery for emergency service rendered unconscious person.

There are a number of cases in the reports in which it was attempted to hold the person summoning the physician to the aid of one suddenly stricken or injured responsible for the value of the physician's services. The holdings in these cases are far from uniform, but it is believed that the true principle, as enunciated in many of them, is that the person summoning the physician is, in the eyes of the law, the agent of the stricken or injured one, the reason given being that were this not so one would hesitate to call aid for a stranger, no matter how grievously injured, if by the act he were to be made financially liable for services rendered. Such a rule would tend to make men hard hearted, inhuman, and to stunt and stifle all the finer humanitarian impulses valued by noble men and women the world over. The law has never pursued such a policy.

But cases wherein the physician has sought to hold the administrator of the estate of one to whom he rendered emergency service while unconscious are exceedingly rare. The case of Cotnam vs. Wisdom, 83 Ark. 601, is however, one of this kind and is interesting not only from a standpoint of fact, but of law as well. The facts, in so far as material to this discussion were as follows:

Mr. A. M. Harrison was seriously injured by being thrown from a street car, and the plaintiffs, being physicians and surgeons, were summoned to give him medical aid.

In the hope of saving Harrison's life, he being unconscious at the time, they performed an operation. The operation proved unsuccessful, the patient dying without regaining consciousness. Plaintiffs presented their bill to the administrator of the estate for the value of their services, and the administrator refused to allow the claim. Suit was then brought to enforce payment.

The administrator refused to allow and pay the claim on the ground that it could not be charged to Harrison's estate because there was no contract between Harrison and the plaintiff's either express or implied, the contention in part being set out in the following language:

"Harrison was never conscious after his head struck the pavement. He did not and could not, expressly or impliedly, assent to the action of the Appellees (doctors). He was without knowledge or will power. However merciful or benevolent may have been the intention of the appellees, a new rule of law, of contract by implication of law, will have to be established by this court in order to sustain the recovery."

In replying to this contention the Supreme Court in part said: "Appellant is right in saying that the recovery

must be sustained by a contract by implication of law, but is not right in saying that it is a new rule of law, for such contracts are almost as old as the English system of jurisprudence. They are usually called 'implied contracts.' More properly they should be called 'quasi contracts' or 'constructive contracts.' " Then, quoting from the case of Seeva vs. True, 53 N. H. 627, continued: "That an insane person, an idiot, or a person utterly bereft of all sense and reason by a sudden stroke of accident or disease may be held in assumption for necessaries furnished to him in good faith while in that unfortunate and helpless condition."

The court in effect held this case to fall within the above rule and that the plaintiffs were entitled to recover for the value of services rendered, holding that where a person had met with an accident that rendered him unconscious, and a physician was summoned, the physician could recover the value of the services on the ground of an implied contract.

In this particular case the plaintiffs obtained a judgment in the lower court. The Supreme Court refused to affirm this judgment on the grounds that certain evidence had been allowed to go to the jury touching the final distribution of Harrison's estate that was not relevant and was of a prejudicial nature.

The language used by the court, and the method of reporting the different steps in the procedure is not as clear as in some other reports from the same jurisdiction, but the conclusions are in accord with the great weight of authority, and no doubt are correct, and the probabilities are that this holding would be followed in a similar case in any other jurisdiction.

RED CROSS PEACE PROGRAM

The plan of the Red Cross public health campaign calls for cooperation with other existing health-promotion and disease-prevention organizations throughout the United States, acting by itself where no health agency now exists, in an effort to reduce the high mortality due to preventable disease and to improve general health conditions. Public health nursing will be one of the important features of this campaign. Red Cross public health nurses will be assigned to many small communities.

The seven thousand public health nurses in the United States are far too few to meet the ever-increasing demands for their services and funds are needed for the establishment of scholarships for the post-graduate training of nurses returning from Europe for this specialized public health work, for the development of the necessary teaching staffs and for research work.

Red Cross Home Service among the families of American soldiers and sailors has brought out the important fact that in 90 per cent of the places where Home Service is now operating there is no other social work agency. Accordingly, there is an imperative demand, national in scope, that this service, with its thousands of highly trained workers, be continued and expanded. . . .

Where social agencies are established, the Red Cross will act as a cooperating and coordinating organization when requested to do so.

As always in its long history of general usefulness the Red Cross must hold itself ready for instant relief service in time of public disaster, such as great fires, floods, cyclones, shipwrecks, earthquakes, pestilence, famine and epidemics. Experience in the war and the great organization built up through that emergency will make this branch of Red Cross activity more effective than ever before.—*The Red Cross Bulletin.*

*The sixth of a series of articles on "Law for the Doctor," written for MODERN MEDICINE by Leslie Childs.

AIR CONTROL: THE NEXT GREAT STEP IN HOSPITAL PRACTICE*

IN THE WAR against Germany the world learned that control of the air is absolutely essential to victory. In the next great war against disease the same lesson must be learned, although in another way. Whatever we may believe in theory, the general practice in hospitals is to proceed as if the following conditions of the air were desirable:

1. An average temperature not lower than 68 degrees.

2. As little variation of temperature as is consistent with keeping the air pure and fresh.

3. Whatever degree of humidity the weather may happen to determine; that is, a relative humidity of 10 to 15 per cent on very cold winter days, and every other degree of humidity up to 100 per cent on wet days in summer.

No one of these conditions is correct. The first is a little wrong; the second, decidedly wrong; and the third would be criminally wrong were it not due to ignorance. In place of these unhealthful conditions every up-to-date hospital ought to substitute the following:

1. An average temperature of about 64 degrees for day and night together.

2. As much variation as possible, provided the patients do not become chilled.

3. A relative humidity of about 70 per cent when the mercury stands at about 65 degrees. In winter the humidity may have to be somewhat lower if 70 per cent causes too much condensation on the cold walls.

The proof of these statements is found in an article by Professor Huntington in the first number of *Modern Medicine*, and in his new book, "World Power and Evolution." He has made a study of the relation of temperature and humidity to about sixty million deaths in a dozen or more countries. About four hundred thousand of these deaths occurred in New York City during a period of eight years, and were examined in relation to the weather on the *day* of their occurrence. Nearly nine million more, in France, Italy, and the United States, were treated similarly with the *month* as the unit, each city being studied separately. The other fifty million were examined sufficiently to determine that they agree with those studied more minutely. No previous investigation of health in relation to climate has been made on anything like so vast a scale or with so much precision and detail. This fact, coupled with the remarkable agreement between widely separated parts of the world, makes it the duty of every progressive physician to study Professor Huntington's results and apply them to his own

particular problems. The chief results may be summarized as follows:

1. For the white race the optimum or most favorable temperature, so far as physical health is concerned, is an average of 64 degrees for day and night together. That is, the thermometer may rise to 70 or even 75 degrees by day and fall to 60 or 55 degrees by night.

2. The optimum temperature is practically the same no matter whether people live in the cold north or the warm south. Even among negroes it is no higher than 68 degrees and perhaps lower. There appears to be almost no such thing as real acclimatization involving a fundamental change of physique. An unfavorable climate merely causes man's activities to proceed at a slower rate or on a different level.

3. Variability, both from season to season, and day to day is highly favorable. The value of changes from day to day, however, is much less at low temperatures than at high. Variability involves movement of the air, a matter of much importance.

4. The optimum humidity varies somewhat according to temperature, but not so much as is generally supposed. On the other hand, the effect of the relative humidity of the air is much stronger than is usually realized, and quite different from our traditional belief. On days with an average temperature of 64 degrees, the ideal relative humidity averages about 80 per cent; that is, on clear days dew falls at night, while at noon the humidity falls to about 60 per cent. At higher temperatures the humidity should be lower than at 64 degrees, but, contrary to the general belief, a decidedly low humidity is distinctly harmful. In fact, if we include the whole United States the health of the country suffers almost as much from dry summer heat as from damp summer heat. At temperatures below 64 degrees—and this point is most important—the value of moist air and the harmfulness of dry air become more and more apparent. The wettest kind of weather would be the most favorable if it were not too monotonous and if our houses and clothes did not become damp. Damp air with dry clothing and variable temperatures is the ideal.

The preceding generalizations have a most direct and important practical application. The first aim in hospital wards should be to have an average temperature of about 64 degrees for day and night together. This, of course, can be easily accomplished. A *uniform* temperature of 64 degrees, however, is not advisable, for any sort of uniformity is weakening. That is one reason why people are so sensitive to drafts at the end of the

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winter—far more so than in the fall when they are used to a variable temperature, and have not been softened and weakened by the warm monotony of our winter houses. Hence, in the hospital, the temperature should vary. Starting at 58 or 60 degrees in the early morning, the temperature should rise to about 68 degrees during the next hour or so. After staying near that level for perhaps a couple of hours it should be reduced by opening the windows or in some other way, care being taken not to cause drafts or to make the change too sudden. After the temperature has fallen from 4 to 8 degrees during the course of perhaps fifteen minutes, it should gradually rise again, the rise being slower than the fall. This process should be repeated three or four times during the day, while at night it should also take place in the same way except that the low temperature should be more pronounced and continue longer.

The best degree of variability has not yet been determined, but it can easily be ascertained by experiment. The two essentials are, first, that there should be variations, and, second, that they should not be so great as to chill the patients. Newcomers and others who are particularly sensitive should be put in wards where the variation is slight and then gradually inured to greater variability. It must be remembered, however, that if the air is properly moist, as explained below, the chilling effect of a drop of temperature and of moving air will be much less than under the dry unhygienic conditions which prevail in most hospital wards in winter.

Turning now to moisture, Professor Huntington's data show that in winter the damper months have from 5 to 30 per cent fewer deaths than the dry months of similar temperature. This is true in France and northern Italy as well as most parts of the United States—everywhere, apparently, except where the climate is so warm that the houses are not heated. Obviously the increase in the death rate in dry winter weather is due to the extreme aridity of the heated air within doors. Similar aridity is probably the reason for the excessive death rate in dry cities like Cairo and Lucknow, much higher than in moister tropical cities like Bombay and Calcutta. What is needed in our hospitals in winter is moist, variable air like that which conduces to such excellent health in October and May.

It is easy to humidify the air. Professor Huntington has explained an inexpensive method in the appendix of his "World Power and Evolution." The essential point is to supply a large evaporating surface. This can easily be done by placing under each radiator or near each register

a pan of water. The lower ends of absorbent cotton cloths lie in the pan, while the cloths are spread out above and suspended from horizontal strings or rod. If such cloths are placed behind radiators they are both inconspicuous and effective. Their area can easily be varied to meet the demands of different kinds of weather. While the ideal air for the lungs and body should have a relative humidity of 80 per cent at a temperature of 64 degrees, practical considerations render that too high. If 60 per cent can be maintained at that temperature, or let us say 50 per cent when the temperature rises to 68 degrees, it will serve admirably. With such humidity and a variable temperature, the health of hospital patients should show a marked improvement.—*The Modern Hospital*.

OCCUPATIONAL THERAPISTS IN CONFERENCE

At the third annual conference of the National Society for the Promotion of Occupational Therapy which was held at Hull House, Chicago, September 8 to 11 inclusive, the occupational aide was eulogized, and the conviction was generally expressed that occupational therapy offers an ever-broadening field for women trained along that line.

The growth of the society has been phenomenal. When it was founded three years ago, six people were present at the meeting which was held in New York. At the third conference—which was the first really large one—more than three hundred were in attendance, and a large number of those not already members were admitted to the organization.

The sessions were held at Bowen Hall, Chicago State Hospital at Dunning, and the Henry B. Favill School of Occupations. Mrs. Eleanor Clarke Slagle, superintendent of the occupational therapy department of Public Welfare of Illinois, and director of the Henry B. Favill School of Occupations, after some friendly rivalry was declared president. Dr. Herbert Hall, Devereaux Mansion, Marblehead, Mass., was elected vice-president; Louis J. Haas and Miss Marion R. Taber, secretary and treasurer, respectively, were re-elected. Four new committees were appointed to have special oversight in all matters pertaining to tuberculosis, mental and nervous diseases, cardiac afflictions, and orthopedics. Douglas McMurtrie, of the Red Cross Institution for Disabled Men, New York City, was appointed chairman of the International Committee.

The program consisted of addresses by men and women who have successfully demonstrated the benefits of occupational therapy in practically every line to which it has been considered applicable.

Difficulties encountered by the workers were brought out in the addresses and enthusiastically discussed in the Round Tables. The one most frequently to be overcome is the apathy of the patient, and the aides feel that it is indeed a red-letter day when they get the obstinate ones sufficiently interested to "cuss" over what seems to them the intricacies of their first little problems. Another difficulty is lack of cooperation between ward surgeons and the aides and social workers.

THE MONTH IN MEDICINE

Survey of Current Medical Literature with Editorial Comment

WALTER W. HAMBURGER, M. D., Editor

IMMUNITY OF CITY-BRED RECRUITS

ONE lesson practically all wars have taught has been that immunity to acute infectious diseases in the recruits has some direct relationship to the previous life of the recruits, and in this respect the late war is no exception. It has been stated several times that soldiers coming from the more densely populated urban districts were less susceptible to the acute epidemic diseases of camps than were those coming from rural or more sparsely settled regions.

Love and Davenport¹ have recently summarized the records in the Surgeon General's office with regard to the incidence of measles, mumps, meningitis, and pneumonia, and they find, particularly in the first three diseases, that the incidence bears an inverse relationship to the density of the population in the districts from which the men were recruited. It made no difference where the men camped, the same relationship was established. For instance, in two camps in Texas very close to one another the study of the measles incidence reveals the fact that one camp composed of seasoned New York National Guardsmen showed an exceedingly low percentage of measles cases, while the neighboring camp, composed of men from the rural districts of the South showed the highest incidence of measles.

In the Great Basin and in some of the districts of the Northwest where the population is comparatively small, it was found that the morbidity statistics did not run inversely to the density of the population. This fact, however, is explained on the ground that a large percentage of the young men coming from such districts were not born there but migrated from more congested parts of the country where they were born.

Various hypotheses are put forward by Love and Davenport in explanation of the apparently proved immunity of the city recruit as compared with his country brother, and they are inclined to believe in a non-specific immunity produced by one infectious disease against not only itself but

against other infections. This thought follows the ideas suggested by Jobling and his co-workers in their study of non-specific reactions. An epidemic of measles running through a community results in increasing the resistance of that community not only to subsequent measles, but also to other infectious diseases.

INFLUENZA

JUST about a year ago the pandemic of influenza struck the United States, and it is possible that by the time this note is printed a second season of respiratory diseases may already be here. During the epidemic of a year ago opinion was divided as to whether the concurrent bronchial pneumonia was a complication or part of the clinical picture. Bloomfield² and other workers at Johns Hopkins Hospital were of the opinion that bronchial pneumonia was a complication of the influenza infection; and in further support of their contention they have recently published a series of roentgenograms of the lung in cases of influenza in which there were no clinical signs of pneumonia. These pictures lend support to their view that even when the disease lasts longer than three or four days there is not necessarily present any pulmonary involvement.

With the clinical picture and the etiology of the pandemic still unsolved, it would be interesting to study more intensively this year various aspects of the disease. The handicaps under which medical men were compelled to work last year have been removed in great part by the cessation of hostilities and a return to civil practice of a large proportion of physicians.

Of like interest is the communication of Bloomfield and Mateer³ on the disappearance of a positive tuberculin reaction during the febrile period of influenza. In the literature to date practically

1. Love, A. G., Lt.Col., M.C., U.S.A., and Davenport, Charles B.: Immunity of City-Bred Recruits. *Arch. of Int. Med.* 1919, xxiv, 129.

2. Bloomfield, Arthur L., and Waters, Charles A.: The Correlation of X-Ray Findings and Physical Signs in the Chest in Uncomplicated Epidemic Influenza. *Bull. of the Johns Hopkins Hosp.*, 1919, xxx, 342:252.

the only acute illness which was associated with disappearance of the von Pirquet test was measles. These authors have shown, however, nineteen cases of true influenza in which the reaction to dermal tuberculin tests disappears and again appears during convalescence. Many investigators have pointed out other similarities between measles and the pandemic.

THE PATHOLOGY OF INFLUENZA

WHILE countless papers have been published concerning the clinical aspects, bacteriology, and treatment of influenza, and while several papers have been published concerning the pathology of the lungs in influenza, relatively little has appeared concerning the general pathology of the recent epidemic. Indeed, one might say that so much attention and emphasis have been given to the respiratory tract in influenza that the other systems of the body have to some extent been lost sight of.

In view of these facts, Lucke, Wight and Kime's careful and complete study of the pathologic anatomy of 126 definitely proved, fatal cases of influenza at Camp Zachary Taylor and Camp Knox, Ky., is particularly noteworthy. These 126 cases were selected from a considerably larger number of autopsies by ruling out all patients who clinically gave evidence of such pre-existing disease as tuberculosis, measles, etc.

External Appearance.—The necropsies were performed under ideal conditions, usually within a few hours after death. The general appearance of these bodies showed the face, as well as almost the entire body to be of a dusky color, sometimes even purplish black. In about two-thirds of the cases a bloody, sometimes frothy, discharge exuded from the nostrils and the mouth. The cadaveric rigidity seemed to be somewhat delayed. The superficial glands were never found palpably enlarged. Edema, although always looked for, was never present and this should be emphasized in view of considerable renal changes. The joints were never enlarged, nor was any arthritic condition demonstrated at necropsy, although it was sometimes seen clinically.

The Skin.—Two types of skin lesions were encountered—purpura hemorrhagica in about 20 per cent and toxic necrosis of sebaceous follicles in about 60 per cent of the cases. Jaundice was present in about 10 per cent.

Subcutaneous Tissues.—Generalized emphysema was present in three cases. "We believe the

mode of origin of this to lie in ulcerative or erosive bronchiectasis with escape of air in the peri-bronchial tissue and thence to the mediastinum and subcutaneous tissue."

Muscles.—Zenker's hyaline degeneration of the rectus muscles was observed in about 10 per cent of the cases.

Peritoneum.—Peritonitis occurred three times in chronic influenza.

Blood Vascular System.—Extreme congestion with areas of hemorrhages, was commonly present.

Pericardium.—Pericarditis occurred seven times.

Heart.—The heart muscle was practically always affected. This is especially interesting because of many conflicting reports to the contrary. In more than 90 per cent of the cases more or less relaxation of the right heart was present; in more than 80 per cent an associated cloudy swelling occurred. Microscopically, there was an acute parenchymatous degeneration and vacuolization. Endocarditis was seen only once.

Respiratory System.—The accessory nasal sinuses presented purulent or sanguinopurulent involvement in about 85 per cent of the cases. Microscopically, an acute sinus catarrh was almost always present.

Pleurae.—The pleurae were involved on one or both sides in more than 80 per cent of the cases.

Lungs.—The pneumonitis was generally lobular in type. The nonconsolidated lung tissue was generally very hyperemic. The essential pathology of true influenzal pneumonitis seemed to be extreme hyperplasia of the pulmonary epithelium.

Spleen.—The spleen was usually flaccid, occasionally mushy, and generally bloody.

Suprarenals.—The adrenals were usually congested and somewhat edematous; in three cases a frank hemorrhage was seen. Lipoid exhaustion was the most notable change.

Kidneys.—The kidneys were generally enlarged, flaccid, and congested. The renal changes seemed to be in the nature of a parenchymatous degeneration with edema rather than of a productive nephritis.

Liver.—The liver was definitely increased in size and weight. Cloudy swelling was common. In one instance a true acute yellow atrophy was encountered, and in several others necrotic changes which could be looked on as precursors of yellow atrophy.

Brain Membranes.—The *dura mater* was congested in about one-third of the cases. Suppurative meningitis, due to secondary invaders, was present in 20 per cent.

3. Bloomfield and Mateer: Changes in Skin Sensitiveness to Tuberculin During Epidemic Influenza. Bull. of the Johns Hopkins Hosp., 1919, xxx, 342:238.

4. Lucke, Baldwin, M.D.; Wight, Tonybee, M.D.; and Kime, Edwin, M. D.; Pathologic Anatomy and Bacteriology of Influenza, Arch. Int. Med., 1919, xxiv, 154.

Brain.—The brain was generally congested, hyperemia and focal hemorrhages being very frequent. The changes were more marked in the cerebrum, while the cerebellum, medulla, pons, and spinal cord showed relatively slight alterations.

Five of these 126 cases had an average duration of sixty days and were regarded as chronic influenza, presenting certain characteristic features. All of the patients were markedly emaciated. The serous membranes were frequently involved. The heart always showed cloudy swellings and hydropic degeneration. The lungs evidenced pneumonic processes of long standing. The kidneys presented pronounced glomerular nephritis.

The conclusions of these authors are particularly interesting and are quoted in full.

(1) The incidence of influenza is greater among whites than among negroes, but the mortality rate is higher among the latter.

(2) The average duration of life is fourteen days; in the early part of the epidemic the average duration of life is considerably shorter, and in the latter part considerably longer.

(3) The anatomic and bacteriologic findings vary with the stage of the epidemic and of the disease, and depend to a certain extent on the endemic bacterial flora. Earlier in the epidemic the disease was more fulminating, and during this time the *Bacillus influenzae* was most often found; as the epidemic progressed and the attacks lengthened, secondary invaders appeared more and more frequently and corresponding anatomical changes were found.

(4) Influenza produces widespread changes throughout the body and, while the lungs commonly present the most spectacular lesions, pronounced alterations are also encountered in the nervous, cardiovascular, and other systems.

(5) The most general changes produced by influenza are pronounced congestions, hemorrhages, toxic degenerative lesions, and hemorrhagic inflammations. Hyperemia and hemorrhages are especially striking in the meninges, brain, serous membranes (petechial hemorrhages), skin (intense cyanosis, purpura hemorrhagica), lungs, spleen, liver, and kidneys. Examples of toxic degenerations are Zenker's hyaline degeneration of the rectus muscles; conglutination and hyaline thrombosis; hyaline degeneration of vascular walls; hyaline degeneration of germinal centers of splenic follicles; focal necrosis of the liver, pancreas, and suprarenal; toxic ganglionic changes and edema in the nervous system; and cloudy swelling of parenchymatous organs. Hemorrhagic inflammations are exemplified in early pneumonitis and pachymeningitis; productive inflammations are uncommon and are confined to the later stages of the disease.

(6) The true pneumonitis of influenza is characterized by extreme proliferation of pulmonary epithelium, pronounced hyperemia, and hemorrhages. The commonly present secondary invaders produced a pneumonitis which grossly and microscopically consists of a number of separate, dissimilar pathologic processes. Microscopically, a lobular pneumonia, with a tendency to become pseudolobar, and with a mixed, smooth and granular cut surface, is present. Microscopically, there are four distinct types

of exudates, often within the same microscopic section, but distinctly independent. These are: Catarrhal, fibrino catarrhal, fibrinopurulent, and purulent in type.

(7) Throughout the disease there is a relative paucity of polymorphonuclear leukocytes and a proliferation of the lymphoid tissue; this would seem to point to myeloid intoxication and to lymphoid stimulation.

(8) Chronic influenza is characterized by relative absence of vascular changes, connective tissue proliferation, and diffuse suppuration.

(9) The influenza bacillus, although not found in every case, was present in a sufficiently high percentage, and often enough in acute fatally ending infections to consider it, if not the prime cause, at least the most important indicator of epidemic influenza. At all events its appearance with the epidemic and its relative absence prior thereto, using the same cultural methods, strongly strengthens the assumption of its pathogenic rôle.

(10) *Bacillus influenzae* was easily cultivated early in the epidemic and during the recrudescence of the last period, and this corresponded with the fulminating pathology of these stages.

(11) As the patients lived longer and the epidemic progressed, bacterial agents, well established at this post as the cause of respiratory tract disease, notably the non-hemolytic streptococcus and pneumococcus, appeared as secondary invaders and modified the bacterial readings and anatomic changes.

(12) The nonhemolytic streptococcus, it should be stated, was a frequent commensal in the earliest part of the outbreak.

(13) It is noteworthy that all the above secondary invaders were more fatal in symbiosis than alone.

(14) Later in the epidemic the hemolytic streptococcus assumed the ascendancy as a tertiary invader crowding out the secondary invaders, and was of especial importance in cases of long duration. Staphylococcus and *M. catarrhalis* made their appearance toward the end of the epidemic and to some extent modified the pathology.

We wish to enter a plea for the reading and recording of total bacterial flora and their symbiotic relationships; by this means too great weight would not be placed on single observations, like typing of pneumococci. Furthermore, in the study of this disease, observation should be made on the stage of the epidemic and the individual cases. By this method the proper relations of the various organisms can be calculated.

Discussion.—These carefully studied cases of influenza are worthy of much thought. It would seem that they point the way to our conception of the clinical entity known at present as influenza and, as these authors state, "Influenza produces widespread changes throughout the body, and while the lungs commonly present the most spectacular lesions, pronounced alterations are also encountered in the nervous, cardiovascular, and other systems." This conception may be considered the keynote of the problem, namely, that this dread disease is a generalized infection, gaining entrance to the body through the respiratory tract, but affecting to a greater or less degree the entire body. In the clinical handling of influenza patients then, this conception of a generalized widespread infection should be constantly borne in mind; and in the examination,

diagnosis, and treatment of the disease, one should plan his therapy and be constantly on the lookout for possible harm to all organs. While these studies are illuminating, in another sense, they are disheartening, for they show the futility of any single drug or measure to combat individual symptoms and isolated disease processes. They emphasize again the need of specific therapy and prophylaxis and stress anew the fact that early, continuous, and prolonged rest in bed is the only real measure of value that we have at the present time.

THE CYANOSIS OF INFLUENZA

IN THE recent epidemic of influenza with its accompanying pneumonia the unusual frequency of cyanosis was striking, and was in fact one outstanding feature of the epidemic.¹ Thus Stadie² introduces his recent article on studies of the oxygen content of the arterial and venous blood of pneumonia, and its relation to cyanosis. Any additional light on this feature of the recent epidemic of cyanosis is highly desirable for it was the experience of everyone throughout the country that probably a new factor was dominant in the causation of this striking symptom and was unrelated to usual experience in pneumonia and heart conditions, namely, that cyanosis is an evidence of cardiac failure, widespread lung consolidation, or insufficient oxygenation of the venous blood in the pulmonary circuit.

Of additional interest in the results of this work itself, is the fact that Stadie has confirmed the opinion of Hurter that puncture of the radial artery is a safe procedure, and has described in detail how this technic is carried out. Likewise, the introduction of the new term "oxygen unsaturation" (Lundsgaard) as the difference between oxygen content and total oxygen capacity must be clearly appreciated. "The unsaturation may be expressed either as cubic centimeters of oxygen per 100 cc. of blood, or as percentage of the total oxygen capacity."

Stadie classifies the possible causes of cyanosis under three heads: (1) disturbance of the capillary bed; (2) changes in the hemoglobin; and (3) admixture cyanosis. His final conclusions as to the final causes of influenza-pneumonia therefore are as follows:

It is evident that the cyanosis of pneumonia patients is due to the incomplete saturation of venous blood with oxygen in the lungs, and that the various shades of blue observed in the distal parts are caused by an admixture of reduced hemoglobin and oxyhemoglobin in the superficial capillaries.

Likewise his conclusion that oxygen consumption, that is, the difference between arterial and

venous contents, was within normal limits, indicating that the cardiac output was not diminished in the cases of pneumonia studied.

STUDIES ON CYANOSIS—PRIMARY AND SECONDARY CAUSES

LUNDSGAARD³ considers that abnormally high oxygen unsaturation is the primary cause of cyanosis but that no proportionality exists between the intensity of the blue color and the amount of reduced hemoglobin. The explanation of this lack of proportionality he discusses in what he calls the "secondary causes of cyanosis." He shows that when the capillary oxygen unsaturation, which normally is about 2 to 3 volumes per cent, is increased to about 6 to 7 volumes per cent, cyanosis actually appears.

He shows further that this increase is produced either by an abnormally great reduction during passage through the capillaries, or by a state of partial reduction on the arterial blood entering the capillaries, the first condition occurring when the blood flow is retarded, as in decompensated heart conditions, the second in certain lung and heart diseases, when the alveolar oxygen tension is greatly decreased.

Discussion.—These recent studies on cyanosis are in a sense to be considered merely as introductory, and as stating the problem. Confirmation and elaboration of this work must and surely will come within the near future and we may confidently look forward to interesting results in this unexplored field. From a clinical standpoint, already Stadie's work is suggestive in showing that the oxygen consumption of these influenza-pneumonia patients to have been within normal limits, indicating that in spite of pathological change in the heart muscle, the cardiac output was not diminished. The fact that the cyanosis is due to the incomplete saturation of venous blood with oxygen simply points the way for the need of more extended work as to the causes of this incomplete saturation.

In view of the fact that the oxygen consumption is normal, thus ruling out the cardiac element, one could speculate that the failure to saturate the venous blood in the lungs with oxygen must in some way be related to local changes in the lungs or pulmonary vessels, or to chemical changes preventing the more complete saturation of venous blood.

². Stadie, Wm. C., M.D.: The Oxygen of the Arterial and Venous Blood in Pneumonia and Its Relation to Cyanosis, *Jour. Exper. Med.*, 1919, xxx, 215.

³. Lundsgaard, Christen: Studies on Cyanosis. I, Primary Causes of Cyanosis, II, Secondary Causes of Cyanosis, *Jour. Exper. Med.*, 1919, xxx, 259.

SCABIES IN RELATION TO THE COMMUNITY

BY A. RAVOGLI, M.D., CINCINNATI, OHIO

WITH the returning soldiers from Europe, and from the cantonments it happens quite often to meet cases of scabies which have passed unrecognized. We have seen persons afflicted with this affection as long as from two to four months. They had consulted several physicians, nearly all of whom had agreed that they were suffering from eczema produced by acidity of the stomach. As a consequence the eating was cut down, no meat, no sweet cakes, no ice cream, etc. That they have eczematous conditions of the skin, there is no doubt; but these are the results of scratching with the finger nails.

Everybody knows that scabies is due to the presence of a mite, an *animalculus acarus scabiei* which bores into the epidermis and makes this layer of the skin its habitat. We must laugh at the recommendations of dieting to cure scabies.

The Offending Organism

Scabies is a local disease, highly contagious, produced by the *acarus scabiei*. It is to be noted that of the *acarus* there are male and female. The male has short life, is found only rarely between the crusts, fecundates the female, and then dies. The female is twice the size of the male; it bites the epidermis and hides itself under the cover of the epidermis. It has a system of mandibulae with which it bites the epidermis, and a suction organ to suck the fluid of the deep epidermal cells for its nutrition.

The *acarus* has some long bristles at the posterior legs which prevent it from going back; in consequence, it is compelled to proceed and in this way forms the furrows which is the characteristic sign of the scabies.

When the certain proof of scabies is needed, the *acarus* must be found. Furrows are mostly found in the interdigital spaces, in the penis, or on the upper axillary regions. The furrow is easily recognized as a line somewhat elevated, running in tortuous way, and containing small dark dots. The furrow shows two extremities, one superficial, fringy, where the *acarus* has bitten; it is the point of entrance. The other end is somewhat round, deeper, and it is the place where the *acarus* is embedded. With a flat needle the epidermis is pierced in that point and broken. In raising the needle a whitish oval round body is found hanging. This is placed on a glass slide with a drop of glycerin, or of Canada balsam, and examined under the microscope (Fig. 1). Under a small

power the *acarus* looks like a small turtle, with six extremities when at the state of larva, and with eight, four in front and four in the rear, when full grown. The back shows rows of thorns. The head has six bristles, and four pairs of mandibulae with two feelers. The front legs are furnished with a kind of suckers. The back legs have long bristly hair, which prevent the *acarus* from going back from the furrow. The *acarus* consequently must always proceed, lay the eggs, and after some time dies. The eggs with the body calor are hatched, and the small *acari*, developed, come out of the furrows, especially during the night, crawling on the surface of the skin, and causing unbearable itching, with loss of sleep to the patient. In the furrow, together with the eggs of the *acarus*, small dots are seen, which are the feces. The eggs are oval, and those near the opening of the furrow show the developing *acarus*.

Symptoms to Be Noted

The most interesting feature is the furrow, which is directly produced by the *acarus* entering in the epidermis. It is somewhat elliptic, or appears as a half circle, irregular, one or two millimeters long. Near the furrow often vesicles or pustules are formed, which have nothing to do with the furrow, but are the result of irritation to the skin produced by the *acarus*. The *acarus* in the epidermis travels always slantingly, as it tries to reach the juicy cells of the mucous layer which afford better nourishment. The epidermal cells, deprived of their plasma from the suction of the *acarus*, become keratinous and dry, and the *acarus* is compelled to proceed to find better nutrition. Meanwhile, in the place occupied the eggs are laid. The furrow, which in the beginning is one or two millimeters long, may reach a length of a centimeter.

From the irritation, vesicles and pustules are formed near the furrow, but they do not contain the *acarus*. The pustules are caused by the inflammation, and they are from the papillary layer while the furrow is in the epidermis.

Furrows can be found almost in any part of the body, but the flexion surface of the wrist, and the interdigital spaces show the furrows more plainly. In children and in adults with soft skin, furrows are found in the palm of the hands, the anterior fold of the axilla, the nipples in the woman, the penis in the man, and the navel. In

general furrows are found in every part of the body where the skin is close to the clothes, as at the vest, the buttock, and the thighs. For the general practitioner it is sufficient to look for the furrows in the interdigital spaces, the wrist, the anterior fold of the axilla, the nipples, and the penis.

Eczema a Secondary Condition

Besides the furrows, the patient with scabies shows eczema, which is the direct result of the irritation from the *acarus*, and an indirect consequence of its action.

From the irritation caused by the *acarus*, papules, pustules, vesicles, bullae are produced at the point of entrance, and the young male *acari* may be found under the furrows and under the crusts. These papules, vesicles, etc., are only incidental; they are more pronounced on persons with thin delicate skin. These eruptions prompted the distinction between vesicular, pustular scabies, according to the prevalence of these secondary manifestations.

In children and in delicate women near the furrows on the soles of the feet, bullae, and papules are developed, which are seated underneath the furrows. Moreover eczematous patches are found scattered all over the surface of the body. The itching sensation is very annoying, but in the evening it is nearly unbearable as it seems that in the warm bed the *acari* are made more lively, the young *acari* leave the furrows and, crawling on the skin, look for their nutrition and abode. The patient is compelled to scratch, and by scratching aggravates the eczema as scratching with the dirty finger nails inoculates other parts of the skin. The eczema is spread in small areas mostly around the furrows consisting of papulae and vesicles, which are broken by scratching and are replaced by crusts and bleeding excoriations. Only rarely a diffuse, weeping eczema is produced.

Distribution of Eczema

The eczematous patches are distributed from the anterior surface of the axillæ, the breast to the knees, forming that peculiar ovoid appearance on which Hebra insisted so much for the diagnosis of scabies. The genitals, the internal surface of the thighs, the wrists, the elbows, and also the legs are covered with eczematous patches. Excoriations and pustules are mostly formed in those regions of the skin where the clothes are more tight as the breast, the vest in the woman, the buttock, the scrotum, and the thighs in those who by their occupation are compelled to sit a long time, as in shoemakers, tailors, etc., and in the children held in arms.

In children the incidental eruptions papules, pustules, and crusts are in such quantity as to cover the furrows, and sometimes make difficult the diagnosis. A patient exposed to the contagion of scabies, either by contact with some one already affected, or from sleeping in a bed where some one affected had slept, or using wearing apparel infected with the *acarus*, in a few days begins to be troubled with itching sensation which gradually increases. Furrows appear only fifteen days after the exposure. When scabies spreads over the surface of the body, with perceptible furrows, exposure can be considered to have taken place from six weeks to three months before. Scabies has not any influence on the general health, nor on the internal organs; it causes only the cutaneous lesions described.

Subsides in Febrile Conditions

The itching sensation prevents the patient from sleeping, and this may have some effect on his general health. It has to be noted that during a febrile illness like pneumonia, typhoid fever, scabies will disappear. On account of the high temperature, or of the quality of the nutritious fluid the *acari* die; but the eggs remain and will develop again after the recovery from the illness. This peculiar condition caused what physicians in the past believed to be metastasis of scabies.

Methods of Transmission

The cause of scabies is the *acarus*. This little insect is communicated from man to man, but it can be taken also from animals. The contagium of man to man is the most easy, and the most common, especially from sleeping in the same bed with some one affected with scabies. It can be also transmitted by using clothes, garments, or sleeping in a bed where somebody with scabies had slept. In general it may be said that scabies is transmitted only rarely by short contact in the daytime. Everybody who is interested in skin diseases has handled patients with scabies, and yet has never contracted the affection.

Diagnostic Data

In reference to the diagnosis, we must repeat that which we have already stated in the beginning, that scabies is not easily recognized by the general practitioner, who usually refers the itching sensation to nervousness, or to vasomotor troubles. The patients are treated with internal medicines, with changing diet, but remain annoyed with the itching eczema, when with one or two local inunctions they can be easily cured.

It is not necessary for diagnosis to extract the *acarus* from the furrow, which is usually difficult,

but the presence of the furrows, will prompt the diagnosis. The interdigital spaces, the penis, and the nipples in the woman, show furrows. In some cases furrows are not found in the hands, especially in individuals using much soap or chemicals.

The multiplicity of such lesions as papules, vesicles, pustules, and eczematous patches, scattered in the parts of the body where the clothes are more tight, helps in the diagnosis. In all these cases although the diagnosis is not sure, there is good reason to suspect scabies. The best way is to treat them as scabies, and in a few days all symptoms will disappear. When the cause is removed, the acari have been destroyed, the itching subsides and in consequence the eczema diminishes. Sometimes, especially when using very strong irritating ointments for the rapid treatment of scabies, eczema gets so bad that it needs to be treated as an after effect of scabies. Sometimes the itching lasts for a long time, and only after prolonged treatment does it gradually disappear.

Essentials in Treatment

The rapid treatment of scabies usually causes great irritation. It has to be remembered that

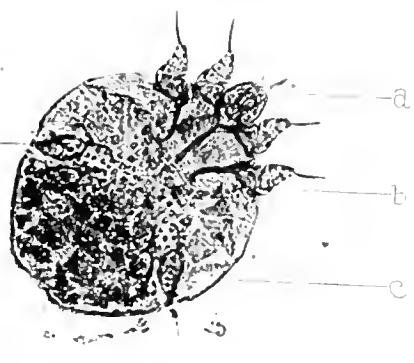


Fig. 1. Female acarus. (a) Mouth with a complicated system of mandibulae, jaws, and a sucker. (b) Anterior extremities furnished with feelers. (c) Posterior extremities with bristly hair, which prevent the acarus from going back.

the *acarus* is in the skin, which is an organ of the body, and in killing the *acarus* the skin is not to be injured. The treatment takes from five days to one week, but during the treatment the patient can do some work. The eczema, an after effect of scabies, takes sometimes two and four weeks to be entirely cured.

Many remedies are capable of destroying the *acari*, at the head of all is sulphur. *Helleborus*, tar, naphthol, balsam of Peru, coal oil, all



Fig. 2. (a) Here the feelers on the front extremities are more perceptible. The four extremities in the rear show it to be an adult acarus. Both are female acari.

form the base of different salves used to treat scabies; but if the applied remedies are not capable of breaking the furrows, dissolving the epidermis so as to reach the *acarus*, scabies may easily recur, for the reason that some *acari* have escaped destruction.

In our practice we have found always reliable the Wilkinson salves as modified by Hebra. The formula is as follows:

R	Flower of Sulfur.....	.....
	Oil of Cade.....	20 gms.
	Green Soap .....	.....
	Lard	80 gms.
	Pulverized White Clay.....	5 gms.

For a delicate skin we prefer the salve of Weinberg:

R	Styrax Liquid .....	.....
	Flower of Sulfur.....	.....
	White Clay Pulverized.....	10 gms.
	Green Soap .....	.....
	Lard	20 gms.

In these salves there is green soap to soften the epidermis, white sand to break the furrows, sulphur and tar to kill the *acari*. The salve produces very little irritation. The salve has to be applied from the neck to the feet, rubbing vigorously so as to break the furrows. One and a half ounces of salve are sufficient for one application. In prescribing according to the age, the sex, and the size of the patient, from four to six ounces

of salve are ordered. The quantity is divided into three parts, leaving a small quantity.

The salve is rubbed strongly all over and some one must help to rub the back of the patient, so that no place is overlooked. After the salve has been rubbed, the same underwear is used; nothing is changed. The patient in the morning can wash the hands and face so as to be able to go to his occupation. The rubbing of the salve is repeated for three successive nights. The patient is told not to take a bath until two days after the last inunction. Meanwhile the little salve left can be used in the evening for the hands, which, having been washed, are liable to contain some *acari*.

The patient may take his bath and wash thoroughly with soap and hot water two days after the last inunction. The reason is to wait until the skin is dry, the shrunk epidermis begins to exfoliate, and all other symptoms of irritation gradually subside. After the bath, the patient has to change all garments, and the clothes have to be fumigated or sterilized, to be sure that no *acari* and no eggs remain.

After the bath some patients still complain of itching sensation; many claim that they are not free, and insist on making some more inunctions. This has to be prevented. The itching sensation is the last to disappear; excessive use of the salve will cause more irritation, and consequently more itching. To relieve the itching a carbolic lotion can be used, dabbing the parts once or twice a day. When the parts dry, cover with starch powder.

R Acid, Carbolic	
Glycerin	aa 5i
Aqua Ros.	
Alcohol	aa 5iii
M. and use externally. Apply as lotion.	

If eczematous eruption should trouble the patient, then it is necessary to cover the places with benzoate of zinc salve, or with a mixture of zinc and calamine, so to cure the remaining eczema.

Ever Present in Working Places

Although scabies is not dangerous, it is dirty and extremely annoying. In factories and working places where there is a congestion of working people, it has to be watched. The physician of the factory should examine every one who scratches his body, because scratching is not natural, and it is usually due either to scabies or to pediculosis.

There is a proverb which says that three things cannot be concealed: love, cough, and scabies. We have seen scabies in people handling dogs, which we have called scabies anamala, and never to be forgotten is the fact reported by Hebra

that the men working in the menagerie of Schoenbrun were affected with scabies. On examination of the camels it was revealed that all were infected with *acari*.

It is a disease which is easily communicated to children by the little girls who take care of the children during the hours that the mother is working in the factory. The little children in arms are kept sitting in the palms and on the wrists of those who take care of them, and the first infection is in the buttocks. When a child has been infected with *acari* when taken in hands by their parents, they too get infected, and this is the way scabies is spread from one to another, and from one family to another. For this reason, when in a factory, college, or school, inmates are found scratching, they must be immediately examined and treated. After the first inunction the workingman under treatment can be readmitted to his work, because there is no danger of communication.

SYMPOSIUM ON NARCOTIC DRUG ADDICTION

The Long Island Medical Journal in its August issue publishes a symposium on narcotic drug addiction. The writers in the symposium are Royal S. Copeland, M.D., commissioner of health, on "The Attitude of the Health Department"; the Honorable Cornelius F. Collins, Justice, Court of Special Sessions, City of New York, on "The Law and the Narcotic Addict"; Sara Graham-Mulhall, on "The New York State Narcotic Commission"; the Honorable Ben A. Matthews, assistant United States attorney, Southern District of New York, on "Medical Practice as Affected by the Harrison Law." Commissioner Copeland in his paper estimates that there are not less than 100,000 drug addicts in New York City alone, which indicates the enormous size of the problem and the importance of the symposium from all points of view.

NEW SCHOOL FOR DENTAL NURSES

The Royal College of Dental Surgeons, Toronto, Ont., with the session of 1919-20 will have a training school for dental nurses. The intention of this course is to train young women for service to both dentist and patient in the practice of dentistry, and to prepare them for public service, to act in the capacity of assistants to dentists engaged in school and hospital dental service. The course will embrace seven months' instruction divided into two semesters. The subjects of the course are: the tooth brush and its use; office routine and management; records, banking and correspondence; assisting at dental chair; knowledge and care of instruments, materials and equipment; assisting with anesthetics; preparation of drugs for dental use; sterilization and sanitation; elementary pathological laboratory technique; elementary prosthetic laboratory technique; radiography; ethics and conduct; school and hospital dental service. The registration fee is ten dollars, and tuition fee twenty dollars for each semester. The first class is limited to fifteen members. Each candidate who successfully completes this course is to be known as a dental nurse and will act entirely as an

assistant and not be trained or permitted to practice as a "hygienist."—*Oral Hygiene.*

THE TREATMENT OF HAY-FEVER

In this article by William Scheppegräll¹ one finds a good review of almost all methods in use at present in the treatment of this baffling disease. The first factor is the removal of the pollens which cause the disease. As is now well known, the spring hay-fever, comparatively rare in this country, is usually caused by the pollen of various grasses; while the autumnal catarrh is produced by the ordinary ragweed. In all cases treated at the Hay-Fever Clinic at the New Orleans Charity Hospital, patients are given charts of nine blocks of their neighborhood with instructions to locate thereon lots that are infested with weeds. The Board of Health is then informed of the presence of the weeds and notifies the lot owners to cut the weeds under penalty of prosecution for violating the grass-weeds ordinance, which apparently is in existence in New Orleans. In 1916 he has shown that special effort to remove the source of the pollen had resulted apparently in a reduction of the spring catarrh by 50 per cent; but the autumnal type was not markedly reduced because of the wide potential radius of the ragweed pollen. When it is impossible to remove the pollen-producing grass and weeds, the patient is instructed to keep away during the season from infested districts.

The effect of rain is two-fold: it causes precipitation of pollen floating in the air; and prevents more pollen from leaving the plant. Furthermore, according to Scheppegräll's experiments, pollen that has been soaked in water loses its toxicity. Although the effect of nasal gauze in the prevention of hay-fever is considered nil, considerable benefit arises from screening windows of rooms in which sick hay-fever patients are, by means of cloth saturated in water.

Surgical procedures on the nose or accessory sinuses do not cure hay-fever patients, but any condition, such as marked spurs, ridges, or deflections, which might cause a concentration of pollen in the obstructed nostril, should be treated surgically. Also, infections of any of the accessory sinuses should be treated as a preliminary to other hay-fever therapy. Calcium chlorid, or calcium lactate, in doses of 15 grains, well diluted, three times a day after meals, is occasionally found of value; and cases associated with asthma have been helped by sodium iodid. The injection of succinimid of mercury, $\frac{1}{6}$ grain in distilled water, has been employed with benefit by Wright, of the United States Navy.

The only local treatment which may help is menthol, two grains to the ounce of liquid petrolatum, used in the form of a spray. Temporary relief is also furnished by cocaine and epinephrin, but the after effect is likely to be bad. The author also uses an instrument for vibratory massage over the inferior turbinal septum and the lower portion of the middle turbinal.

Specific therapy along the lines advocated by Strouse and Frank, in 1916, has been employed by Scheppegräll with apparently unusually good results. Intradermal tests of pollens are made, and injections of the extract given before the onset of the hay-fever season. Scheppegräll starts with 5 units and goes as high as 100 to 200. As soon as the specific pollen appears in the air, the extract injections are reduced and bacterial vaccines employed. Scheppegräll uses either an autogenous vaccine

or, a stock vaccine consisting of many of the organisms usually found in the respiratory tract.

Scheppegräll claims that in a series of 707 cases there were seasonal cures in 49 per cent; marked improvement in 40 per cent; or satisfactory results in 89 per cent of the total number. These figures are decidedly higher than those reported by other investigators. In some cases there was no apparent improvement during the season, but there was relief the following year.

FACTS ABOUT CANCER

The United States Public Health Service in its "Keep Well Series" recently published a concise, instructive statement in which cancer is designated as a curable disease if discovered in time, and a preventable disease if certain definite conditions are avoided. The facts which it is believed every person over thirty years of age should know are summarized as follows:

"(1) Cancer at the beginning is usually painless and its onset for this reason is especially insidious and dangerous.

"(2) Cancer is at first a small local growth which can be safely and easily removed by competent surgical or other treatment.

"(3) Cancer is not a constitutional or 'blood' disease.

"(4) Cancer is not contagious.

"(5) Cancer is, practically speaking, not hereditary.

"(6) Every lump in the breast should be examined by a competent doctor.

"(7) Persistent abnormal discharge or bleeding is suspicious.

"(8) Sores, cracks, lacerations, lumps, and ulcers which do not heal, and warts, moles, or birthmarks which change in size, color, or appearance, may turn into cancer unless treated and cured.

"(9) Probably 60 per cent of cancers of the rectum are first regarded as piles. Insist on a thorough medical examination.

"(10) Continued irritation in some form is the usual cause of cancer. It rarely results from a sudden injury.

"(11) A doctor who treats a suspicious symptom without making a thorough examination does not know his business."

INFANT MORTALITY IN LARGE CITIES

According to a compilation made by the Newark, N. J., Department of Health, that city leads for having the lowest infant mortality rate for the larger cities of the United States. The figures given are based on reported births and reported deaths, and are as follows for a number of cities:

THE INFANT MORTALITY RATE FOR THE LEADING CITIES OF THE UNITED STATES FOR FIRST SIX-MONTH PERIOD, JANUARY 1-JUNE 30, 1919

Cities.	Rate	Births	Deaths Under One Year
Newark	77.1	5,460	421
St. Louis	84.2	6,421	541
New York City	87.2	65,926	5,747
Manhattan	92.0	28,768	2,646
Philadelphia	88.9	20,654	1,838
Baltimore	94.4	8,381	792
Cleveland	96.9	9,392	911
Detroit	107.2	12,382	1,328
Buffalo	121.0	6,238	755
Pittsburgh	133.1	6,782	903
*Chicago	100.2	....	3,177
*San Francisco .....	....	....	....
*Milwaukee	103.9	5,348	556
*Boston	104.2	9,256	965

Rates are based on reported births and reported deaths.

*Rate for Chicago was based on estimated births by Chicago Department of Health.

†Reply has not been received from San Francisco.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. Contributors: E. Wylls Andrews, A.M., M.D., Chicago; Joseph Bloomfield, B.A., M.D.; Francis J. Charteris, M.D., B.Ch.; John D. Comrie, M.A., M.D., F.R.C.P.; Cary F. Coombs, M.D., F.R.C.P.; Wm. Henry Dolamore, M.R.C.S., L.R.C.P., L.D.S.R.C.S.; William E. Fothergill, M.A., M.D.; John S. Fraser, M.B., Ch.B., F.R.C.S.; Herbert French, M.A., M.D., F.R.C.P.; Edward W. Goodall, M.D., B.S.; E. W. Hey Groves, M.S., M.D., F.R.C.S.; C. Thurstan Holland, M.R.C.S., L.R.C.P.; J. Ramsay Hunt, M.D., New York; Robert Hutchinson, M.D., F.R.C.P.; Cecil A. Joll, M.B., B.S., F.R.C.S.; Frederick Langmead, M.D., F.R.C.P.; Arthur Latham, M.A., M.D., F.R.C.P.; E. G. Graham Little, M.D., F.R.C.P.; Charles Fred Marshall, M.D., F.R.C.S.; R. Foster Moore, M.A., B.C., F.R.C.S.; Maurice Nicoll, B.A., M.B., B.C., M.R.C.S.; Herbert S. Pendlebury, M.A., M.B., B.C., F.R.C.S.; Bedford Pierce, M.D., F.R.C.P.; Joseph Priestley, B.A., M.D., D.P.H.; Sir Leonard Rogers, C.I.E., Lt.-Col. I.M.S., M.D., F.R.C.P., F.R.C.S., Calcutta; J. D. Rollleston, M.A., M.D.; A. Rendle Short, M.D., B.S., F.R.C.S.; J. W. Thompson Walker, F.R.C.S.; P. Watson-Williams, M.D., M.R.C.S.; W. I. de C. Wheeler, B.A., M.D., F.R.C.S.I.; S. A. Kinnier, Wilson, M.A., M.D., F.R.C.P.‡

Written at the end of a war which taxed the resources of everybody in the medical profession, this volume stands out as testimony of the devotion to ideals of the English speaking medical profession. It is, of course, impossible to review in detail the many subjects covered by this book. Suffice to say that practically all the recent contributions to therapy have been abstracted and brought together in a readable and concise form. Contributions of the war surgery to the development of functional restoration naturally occupy a large part of the volume; but medical subjects like influenza and diabetes are not neglected. On the whole, the book can be thoroughly recommended to those who want a brief abstract of the very latest contributions to therapeutics.

S. S.

BACTERIOLOGY AND MYCOLOGY OF FOODS. By Fred Wilbur Tanner, M.S., Ph.D., Associate in Bacteriology, University of Illinois.†

The author is to be complimented for presenting a volume of this subject at such an opportune time. Workers in this branch of science should welcome the text with enthusiasm for it rather completely covers the field that previously has been left untouched from a text book standpoint. As is stated in the preface, the author has liberally quoted from other investigators but this we feel he has done with the greatest of prudence and in such a manner that the scope and completeness of the text have been markedly enhanced.

The text is well written and the chapters logically arranged though in some instances the illustrations, of a stock nature, are rather profuse. Each chapter is appended with a very representative and well selected

bibliography, which will undoubtedly be of great value to the reader. The chapter on yeasts and moulds might possibly have been made more extensive from a botanical standpoint; for this is a field the bacteriologists and food mycologist are not usually extensively prepared to invade and a more complete chapter will prove of great value to these investigators and students. The paragraph on cheese is not as complete as most of the text. It is unfortunate that the author has limited his discussion to cheddar cheese. We feel it a just criticism to state that this chapter is decidedly lacking and that this field has been only slightly entered into. Some of the more important products have received no mention.

The general scope of the volume is well indicated by the chapter which covers the work in botulism, which has recently become of great interest to the food chemist and bacteriologist. This work is brought up quite completely and well indicates the up-to-dateness of the text. The author has ably handled, in most instances, each chapter in such a manner.

Unfortunately, there are a few typographical errors that might confuse the reader but these are not many and will probably disappear in a later edition. The author deserves great credit for producing this text. Undoubtedly it will be very popular with workers in its field and we can readily see how it will justly earn such popularity owing to its general completeness and thoroughness. It is a volume that can well be recommended to bacteriologists and food mycologists.

HEALTH AND THE WOMAN MOVEMENT. By Clelia Duel Mosher, A.M., M.D., medical adviser of women, Leland Stanford Junior University.‡

This little book is a revised publication of an address given at the Fourth Biennial Conference of the Young Women's Christian Association of America. It is a sane and wholesome talk for normal women that is calculated to arouse women to become physically equal to the opportunities thrust upon them. Sound health and physical perfection are first requisites.

She decries the traditional handicaps of sex as not inherent structural differences, but as the results of bad hygiene, constrictive clothing, and inactivity of the muscles of the abdomen and diaphragm. The first step in the physical regeneration of women is to alter their attitude of mind in regard to physical disability. Every woman should cultivate the habit of thinking in terms of health. Such discomforts as arise from functional periodicity are largely due to congestion and circulatory disturbances, and are subject to correction by the following simple exercise:

(Continued on Adv. page 22)

*William Wood and Company, New York, 1919, \$5.00.
†John Wiley & Sons, Inc., New York, 1919, \$6.00.

‡The Woman's Press, New York, 1918, \$0.70.

Food in Relation to Industrial Efficiency.

THE morale of a fighting army is quickly destroyed by a scarcity of food. An army will carry on and win battles while short of ammunition, but not while food is lacking or poor. Food has won wars. The lack of it has forced the surrender of great armies. All the way back through history there may be seen the hand of Destiny guiding one army on to victory and another to destruction by the aid of no other weapon than the kind and quantity of food in the commissaries of struggling armies.

In the industrial development of a nation as in warfare, well nourished workers excel. That nation becomes a leader in world affairs whose food supply is sufficient and of a quality to make its people individually healthy and strong. There is a realization of this potentiality in the minds of school authorities when they provide economical noon-day lunches for pupils. It is the same idea that employers and business executives have before them in establishing company lunchrooms and cafeterias for their working forces.

The workingman and the hard pressed housewife in the laboring man's home, who perhaps has the responsibility for the care of a large family, are not always correct in their judgment of food values. Does the wife always fill her husband's lunch pail with the food which is most nourishing? The sandwiches in the dinner pail do not always meet the requirements of the hungry worker. He does not derive from his cold lunch the amount of energy which he needs to replenish his store of physical vigor and keep him fit for the afternoon's tasks. A well prepared lunch of foods selected for their nutritive qualities will actually increase the worker's

output for the day. Dietitians in the employ of large corporations have demonstrated the actual net results of improvement in the feeding of employees and their families.

The corporations that have been most thorough in their studies of food in relation to work and output carry their inquiries into the homes of their workers. Assistance is given to housewives in the selection and preparation of meals which are both economical and nourishing. Thus it is possible to promote better health among large groups of workingmen. In turn the time-loss for sickness and minor illness is reduced, which also effects a reduction of the overhead costs entailed in training new employees or substitutes in the places of skilled men whose services cannot easily be spared.

What the Doctor Wanted To Eat

A well-known physician found time while convalescing from the influenza, last winter, to write us:

"I have taken care of about five hundred cases of influenza in the past six weeks, and came down with the disease myself on the 24th inst. Our cook asked what I wanted to eat, and I said, 'Jell-O and cream every two hours and nothing else.'

"That is the diet I gave my patients, because we have found out that the danger lies in complications, the most fatal being hemorrhage. Now, it is a well-known fact that gelatine in any form helps materially the coagulability of the blood, thereby decreasing the chances of internal hemorrhage."

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paigns has been recognized as a factor in production. The American workman takes pride in the fact that standards of living in this country place him in a more favorable position than the workingman in a foreign country. He achieves his superiority as a workman because America feeds her population well.

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ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

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BOOKS OF THE MONTH

(Continued from Page 548)

"All tight clothing having been removed, the woman lies down on a level surface. The knees are flexed and to secure perfect relaxation the arms are placed at the side. One hand rests on the abdomen without making any pressure. It is merely to serve as an indicator of the amount of movement. She is directed to see how high she can raise her hand by lifting the abdominal wall and then to see how far the hand will be lowered by the completest contraction of the abdominal walls—drawing in of the abdomen."

"The exercise is repeated ten times. It is carried out twice a day, preferably before dressing in the morning and after undressing in the evening.

"The woman who is not well should study her dress in relation to her body; her habits of eating, water drinking, sleeping, elimination; her exercise and bathing; and make sure she gets sufficient fresh air. . . . If she needs medicine or advice, she should go to the best physician she can find; they never advertise. Finally, she should do these exercises every day in the month, including the days of menstruation, and see if she cannot join the great and growing army of women who are perfectly well, and who recognize that being a woman is not a handicap."

We recommend the hook for general use.

SYMPTOMS OF VISCELAR DISEASE. By Francis Marion Pottenger, A.M., M.D., L.L.D., F.A.C.P., Medical Director, Pottenger Sanitarium for Diseases of the Lungs and Throat, Moravia, Cal.; Professor of Diseases of the Chest, College of Physicians and Surgeons, Medical Department, University of Southern California, Los Angeles, Cal.*

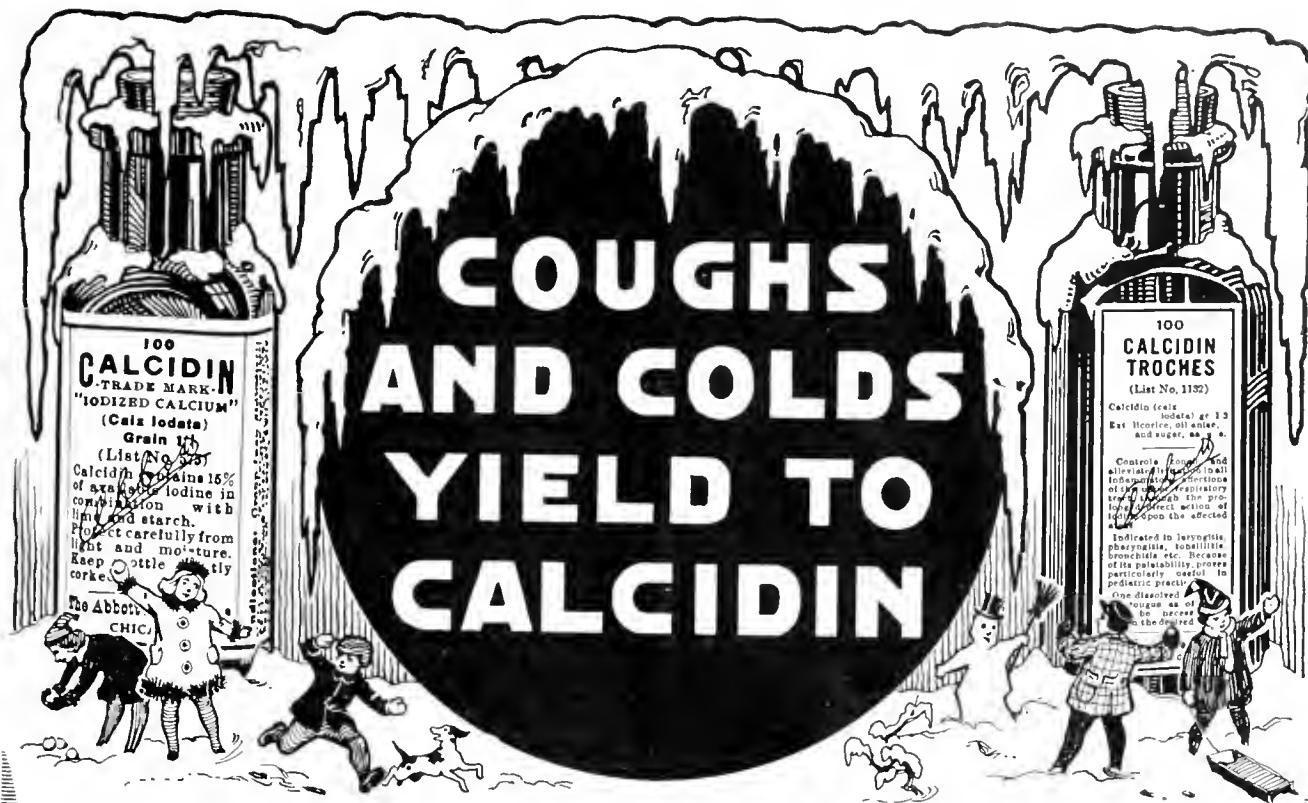
The principal interest in this book lies in an effort to fill the gap of the "uneven development of medicine" lacking in full enough consideration of the patient who has the disease "in the way that such should be presented in clinical aspect of the disease which has the patient."

The effort of the author is a commendable one, and, as far as one can judge at the present status of knowledge, is very well done. There is an explanatory attitude in the opening chapter which the well versed clinician might criticise as unnecessary; this, however, would not be fair to the author when one has knowledge that the average man requires it to awaken his interest in a rather neglected side of practical medicine, although it has been talked about by the older clinicians almost as long as medicine is aged, namely, the consideration of the patient with a disease as well as the disease that affects him.

In the modern development of the laboratory and all means of scientific studies of disease, the patient's reactions against or to the disease have been somewhat lost sight of. In plain language, the work makes a determined effort in this direction, and deserves the support of the serious medical mind in consequence. To the reviewer a doubtful note is struck here and there; but in the study of pathologic physiology or functional pathology there is still so much doubt and irregularity that the reviewer does not desire to mention them in detail. Only continued study in this direction can settle these points and they are insignificant to the main theme of the wholesale attention to the subject that the work encompasses.

The author writes in a simple style and handles complex subjects in an easily understandable way. He has

(Continued on page 24)



Influenza Warning

Prepare Now for Influenza and Pneumonia Emergencies

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Influenza, Grippe, Coughs, Colds, Croup and other fall and winter respiratory diseases yield to Calcidin, Abbott. Thousands of Clinical reports confirm this fact. A successful doctor in Southern Illinois writes, "I treated 983 cases of influenza last fall. I used Calcidin, Abbott, in practically all of these and only lost one case. I attribute my success to Calcidin and have stocked up, should the flu hit us again."

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The result is whole wheat, whole rice and corn hearts supremely fitted for digestion.

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Chicago

**Puffed Wheat
Puffed Rice
Corn Puffs**

BOOKS OF THE MONTH

(Continued from page 22)

not tried to explain too much nor in that way gone too far with theory and neurological terms. This casually gives one the impression of a series of detached subjects in paragraphs on different organs and physiologic pathologies. One must read the work as a whole for logical connection, although the specialist in any department of medicine would be repaid by perusal of the opening chapters and then what is mentioned in connection with the organ or organs he is particularly interested in.

ULTRA VIOLET RAYS IN MODERN DERMATOLOGY.

Including the Evolution of Artificial Light Rays and Therapeutic Technique. By Ralph Bernstein, M.D., professor of dermatology, Hahnemann Medical College, Philadelphia; clinical chief, Skin Section, Hahnemann Hospital Dispensary.*

The author has outlined in an orderly manner the fundamentals of ultra violet ray therapy, and details the method of procedure in treating various dermatoses. In general the book is helpful to those who are competent to judge for themselves the effect of light therapy; but does not aid one in the discrimination necessary to select cases for which this method of treatment is especially indicated. The reviewer gleans the impression that the author, in spite of his desire not to become over enthusiastic for this mode of treatment, has permitted himself to become too sanguine.

The reviewer likewise is inclined to take issue with the author in the use of the Alpine Sun lamp, especially in the treatment of urticaria.

INSTINCTS IN INDUSTRY. A Study of Working-Class Psychology. By Ordway Tead.[†]

Sufficient attention has not been paid to what the workers are thinking and feeling. The necessity has been recognized of discovering the mental processes and habits of employers as a class, but the fact that modern industry has been organized and developed without a full consideration of the motives and attitudes of its manual workers perhaps accounts for the undercurrents of industrial unrest which come to the surface with increasing frequency.

It is certain that many of the processes of manufacturing are such as offer little stimulus to the workers. They could afford little mental interest in the work itself, nor any vital sense of creativeness, nor pride in the product. Many of the most essential tasks are so onerous and so fraught with monotony that only the mentally handicapped could find any satisfaction in their performance, and nothing but habit or the necessity of earning a living would serve to keep normal individuals engaged in them.

There is perhaps insufficient training in the skilled crafts to afford much of what is termed the "joy of work" but even if the men do know how to do good work, the tendency to use made-to-order material, the division of labor, the speeding up for high production, the insecurity of the tenure of employment, the entire lack of an opportunity for self-expression, all constitute a tremendous repression of human aspiration and desire that is disastrous in industry as it is in any other field of endeavor.

Conditions cannot be righted until we see human nature as it is. "With the instinct of workmanship understood and given guidance and direction, there need be few fears

(Continued on page 26)

*Aehey & Gorrerecht, Medical Publishers, Phila., 1918.

†Houghton Mifflin Co., The Riverside Press, Cambridge, 1918, \$1.40.

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No. 3. With Potassium Carbonate, 2%—Valuable where constipation is present. Potassium carbonate acts as a corrective by softening the fecal matter.

Made expressly for Physicians' use



MEAD JOHNSON & CO., EVANSVILLE, IND.

BOOKS OF THE MONTH

(Continued from page 24)

for the future of the workers or for the future of workmanship. We have only to understand that there is no true joy in work and no true workmanship apart from an appreciable degree of self-direction and self-control."

Ten basic instincts on which our whole life and conduct rest are analyzed as they affect industry. The study is made with reference to the importance of the individual personality. No attempt is made to elucidate the complex group reactions, but the author outlines the origins of some of the characteristic reactions which form a basis for prediction of behavior under given conditions, and for intelligent direction and control. He concludes that "since adequate expression of individual and group impulses requires a considerable measure of self-direction, it seems not unlikely that the demand for an extension of the democratic method is in fundamental harmony with the facts of human psychology."

TRENCH FEVER. A Louse-Borne Disease, by Major W. Byam, R.A.M.C., Captains J. H. Carroll, U.S.R., J. H. Churchill, R.A.M.C.(T), Lyn Dimond, R.A.M.C., V. E. Sorapure, R.A.M.C., R. M. Wilson, R.A.M.C., and L. Lloyd, R.A.M.C.(T), Entomologist; with an introduction by Lieut. General Sir T. H. Goodwin, K.C.B. A foreword by Major General Sir David Bruce, K.C.B., F.R.S., A.M.S., and a summary of the report of the American Trench Fever Commission by Lieut. R. H. Vercoe, R.A.M.C.*

Major Byam merits great credit for presenting this text to the medical profession. It is very cleverly and convincingly written, covering the subject in a most thorough manner. The chapter on the acute disease depicts in a most lucid manner the six different types of the infection from a clinical standpoint and enables the reader to become acquainted with these types so that he may avoid the early pitfalls that befell the diagnosticians when they first encountered the infection on the Western Front.

Possibly never in the history of medicine has so complete a work on the mode of transmission of a disease been done in such short time as in the investigation and study of Trench Fever. These experiments are minutely though not tediously described, and it greatly facilitates the reader to thoroughly understand the methods of prophylaxis and their essentialness in combating the disease. It is also ably pointed out that there are various types of the disease and not many diseases.

The text is most complete, failing though to point out the parasite, which yet remains to be discovered—a most important factor. However, the chapters on Immunity, Pathology, a very complete clinical description of the chronic disease with its important complications (D. A. H. and Neurasthenia), and Prognosis and Treatment are quite readable and instructive.

The carefully arranged appendices contain most valuable information for the medical man associated with men in camps or living under similar group conditions. This greatly enhances the value of the book, which well deserves a place on the shelves of any medical library.

NOTICES OF BOOKS RECEIVED

[*Notices of Books Received will be found on advertising pages 40 and 42*]

Upon the arrival of an American Red Cross worker in a Serbian town of 300 population recently only two well persons were found in the place.



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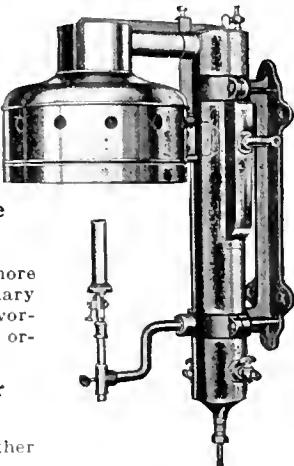
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Distilled
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Against typhoid and other water borne diseases.



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Is simple, economical and dependable and is the only still that exceeds its rated capacity.

It is constructed of Cold Rolled Copper lined throughout with Pure Block Tin—no parts to corrode—and may be operated by Gas, Gasoline, Kerosene, Steam or Electricity.

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Every thinking person now acknowledges that Progress in personal, household, and civic hygiene and sanitation has contributed greatly to the health, happiness and long life of Mankind.

AMONG the changes that have resulted from this advanced thought, changes that are touching the daily life and habits of every home and individual, is the doom of the seamy, squeaky wooden bed; the doing away with the double bed wherever possible, and the insistence upon a separate bed for every individual.

Discussion and explanations of the health-building advantages and efficiency, resulting from sound, restful sleep, is an important part of the work of physicians,

welfare workers and visiting nurses everywhere. It is work in which this company is prepared to co-operate. A wealth of data is now available to interested workers in this field. As the largest makers of metal beds in the world we are always glad to supplement the work of others in spreading the gospel of sound, restful sleep.

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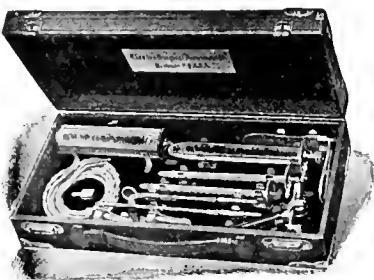
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Others will be substituted if desired. Stamp "E. S. I. CO." is guaranty of our manufacture.



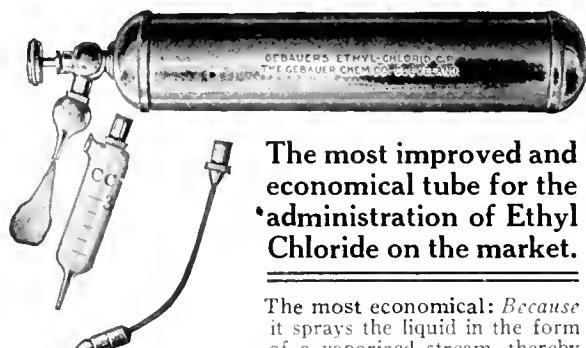
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40 grm tube with ordinary spraying nozzle, \$1.10
80 " " " " " 1.75

Flexible spraying nozzle alone, - - - .50
Graduated dropper, - - - - .50

The flexible nozzle and the graduated dropper will fit either size tube and can be used indefinitely.

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METHODISTS' FORTY-SEVEN HOSPITALS WORTH \$16,000,000

The Methodist churches of the United States now have forty-seven hospitals at which 100,000 patients are cared for annually, exclusive of out-patients, according to the *Christian Advocate*. The property value of these institutions is \$16,000,000. The next quadrennial conference of the Methodists to be held at Des Moines, Ia., in 1920, will consider the advisability of placing the hospitals and related institutions under the control of a board of philanthropies.

MORTALITY FIGURES FOR OHIO

Among the first mortality figures published for the states for the year 1918 are those for the state of Ohio which appears in the *Ohio State Medical Journal* for September. These figures throw much light on the extent of influenza and pneumonia through the worst period of the epidemic. The average death rate for 1918 was 17.82 per thousand as against 14.75 per thousand in 1917. There were 11,986 cases of influenza, or 2.84 per thousand, as against 959 cases in 1917. Lobar pneumonia took a total of 9,605, or 1.82 per thousand, against a total of 4,864 cases and a rate of 0.93 per thousand in 1917. No striking differences appear in other forms of disease.

HEALTH OFFICERS' ROUND TABLE

The coordination of public and private health and social agencies in the control of tuberculosis was discussed by health officers from various localities at a health officers' round table held during the seventh session of the Mississippi Valley Conference on Tuberculosis, held at Des Moines, Ia., in September. Another interesting feature of the conference was a symposium on the subject, "Locating Tuberculosis in a Community." Several demonstration clinics were attended and a visit made to the United States army hospital near the city where the work of the Department of Occupational Therapy was inspected. A series of demonstration clinics in early diagnosis of tuberculosis for physicians not specializing in that disease were conducted under the auspices of the Iowa Trudeau Society.

A NEW HEALTH SYSTEM IN ALABAMA

The *Birmingham Ledger* expresses strong approval of the bill for a new state health department, but suggests that more democratic control be placed in the selection of the members of the State Board. The *Ledger* says:

"Alabama is in dire need of a real health system to care for the state along the most progressive sanitary lines. For that reason the *Ledger* favors the bill presented by the state medical society in its general bearings. We cannot trust to luck in such matters as the flu, spread of the social disease and the like. We must have a system with the authority and equipped with the means to conserve health and prevent disease."

"The *Ledger* has no fault to find with the bill other than the autocratic character of administration. This, it is understood, has been partially waived by an amendment adding the governor to the state health board and conferring powers to confirm local health boards on local officials elected by the people. The concession does not go deep enough. The physicians would still name the health boards, who name the health officers.

"The general assembly should go to the enactment of this health bill with the dual thought of preserving its general features and, at the same time, making the administration more democratic. The bill with an added touch of democracy should pass."

CHEWING GUM IN THE HOSPITAL

TO our sick and wounded boys of the A. E. F. chewing gum often proved a real blessing. As a means of "steadyng the nerves" during painful dressings; to prevent the distressing mouth and throat dryness after "gassing"; to relieve the nervous irritability of "shell shock"; and after operations to avoid the distressing thirst and nausea from the anesthetic, its practical value was repeatedly demonstrated.

The foregoing have taught their lesson, and in many an American hospital today chewing gum is being used as a routine procedure after general anesthesia to allay thirst and nausea. In the fever wards it is being employed in the regular care of patients suffering from typhoid fever, measles, scarlet fever, and other febrile disorders to keep the mouth in a moist and hygienic condition.

In every day practice chewing gum is no less useful, particularly as a pleasant, convenient and exceptionally effective means of relieving certain forms of indigestion, sore throat, nervous cough, for controlling various nervous conditions, cleansing the mouth and preserving the teeth.

Adams Pepsin Gum or Adams Black Jack is the gum most medical men use and recommend, because they appreciate its quality, composition and delightful character.

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Pure Chewing Gum

Adams Black Jack
Adams Chiclets
Adams Pepsin
Adams Spearmint



Adams California Fruit
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**Choice
Vanilla
Beans**
As
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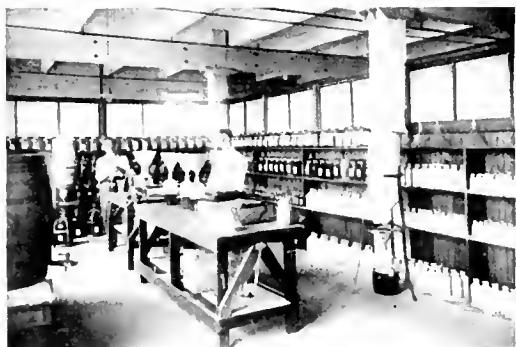


Ariston Super-Quality Vanilla Flavoring Extract

Ariston Vanilla Extract is made from vanilla beans of the finest quality, in a well-equipped laboratory of scrupulous cleanliness, under personal direction of an expert chemist, and is of truly super-quality.

It is of unusual strength, and therefore gives the very greatest value in both quality and economy.

In its preparation, the choicest beans, as seen above, are first chopped fine by machinery and then put into barrels with alcohol, where they remain in maceration for many months in order that the essence extracted by the alcohol may become rich and mellow in character and delicate in flavor. Finally the liquid is drawn off and drips through percolators, as seen in laboratory view, so that when the extract is bottled it is clear as a crystal and of deep, rich color.



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“DEALERS DIRECT WITH YOU”

THE NURSE AND THE CAMPAIGN AGAINST CANCER

The American Society for the Control of Cancer published in July some campaign notes especially directed to the nurses and nursing associations, asking for cooperation in the fight against cancer. Resolutions on the subject have already been passed by the American Nurses' Association, the National League for Nursing Education, and the National Organization for Public Health Nursing. The first two associations urge the teaching of the subject in training schools for nurses. The last named organization emphasized particularly the necessity of dissemination of information concerning cancer.

EIGHTH ANNUAL SAFETY CONGRESS

An entire general session and two sectional meetings of the Eighth Annual Safety Congress of the National Safety Council, which was held at Cleveland, O., October 1 to 4, inclusive, were devoted to discussions of health service in connection with organized accident prevention work.

The program of the congress exhibits lists 160 speakers, including some of the men most prominent in the practice of industrial medicine. It is expected that more than 3,000 safety engineers, industrial physicians, plant managers and others interested or actively engaged in the work of accident prevention will attend the congress.

Dr. Charles A. Lauffer, medical director of the Westinghouse Electric and Manufacturing Company, presided at the General Health Session on the afternoon of October 3 in the ballroom of the Hotel Statler at Cleveland, and at the Health Section meetings during the mornings of October 3 and 4.

While not generally known it is a fact that during the nineteen months of our participation in the war with Germany the casualties from accidents in peaceful America were more than twice as great as the casualties among the American troops in France. The statistics of the United States Census show that more than 70,000 persons died each year as the result of accidents in America. It is estimated that 20,000 of these deaths are caused by industrial accidents and 50,000 by accidents in the streets and homes.

It has been the experience of men and women engaged in organized accident prevention work that a large number of the deaths attributed to accidents result only indirectly from accidents and more directly from causes that can be eliminated by health education. The National Safety Council and the 3,800 industrial concerns included in its membership are therefore giving more and more attention to health education and health service in the war on accidents.

Addresses and papers on health and medical aspects of the safety campaign which will be of interest to physicians and public health officers include the following:

“Physical Examination, First Aid, and Care of the Injured at Cement Plants,” Charles E. Coleman, M.D., Cement Section.

“Lead Poisoning and Its Prevention,” C. P. Tolman, New York City; Chemical Section.

“Humanizing a Steel Plant,” Philip Strommel, Granite City, Ill.; Metals Section.

A number of the leading papers on medical problems of industry will be presented in the November and December issues of MODERN MEDICINE. Among those which will be published are the following:

Industrial Health Hazards; Dr. C. A. Lauffer, Medical Director, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

(Continued on page 32)



A LABORATORY SERVICE

for

The Industrial Physician

and

The Public Service Official

as well as

For the Private Practitioner

THE CHICAGO LABORATORY

The personnel and equipment of the Chicago Laboratory insures expert findings in all tests whether chemical or analytical in the shortest possible time consistent with high-grade work.

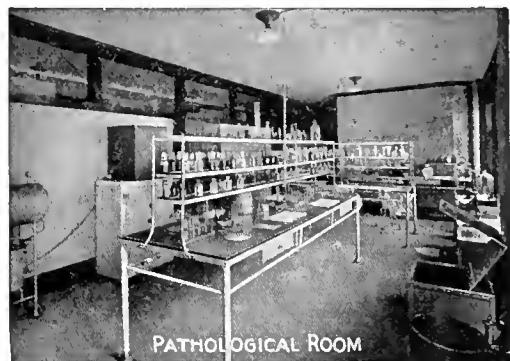
Containers for collections and specimens will be furnished gratis upon request, and if you do not have our Fee Table write now for it.

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You appreciate the value of sunlight as a therapeutic agency; you know about the pure white rays, the violet rays and the ruby screen. The Sterling Therapeutic Lamp combines all these agencies in an efficient and economical manner.

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"The Light That Heals"

Has proved one of the most efficient methods of relieving pain; its effect is soothing and analgesic; its rays are germicidal. The warm, soothing, soft rays penetrate and vitalize every cell and tissue, new cell growth is stimulated; the body is refreshed and vitalized.

In rheumatism, neuralgia, neuritis, lumbago, in nervous conditions and a score of other symptoms and diseases, including skin and scalp disease, the Sterling Therapeutic Lamp is invaluable for the relief from pain, inflammation and for corrective purposes.

With stand it is ideally adapted for additional use as a spot light for operations and examinations.

Widely used in sanitariums, physicians' offices and hospitals; special sizes are adapted for the use of patients under the supervision and direction of the family physician.

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EIGHTH ANNUAL SAFETY CONGRESS

(Continued from page 30)

The Subnormal Worker (Pathological); Dr. Alfred Stengel, Professor of Medicine, University of Pennsylvania, Philadelphia, Pa.

Industrial Dermatoses (Sources, Types, Control); Dr. Wm. Allen Pusey, Chicago.

Bad Teeth and Fatigue; Dr. Weston A. Price, President of the Research Institute of the National Dental Association, Cleveland, Ohio.

Malingering, Involving the Problem of Getting the Sick or Injured Employee Back to Work; Dr. Judson C. Fisher, Chief Chemical Examiner, Globe Indemnity Company, New York.

The Treatment of Burns; Dr. W. I. Clark, Norton Company, Worcester, Mass.

What the War Has Taught Us in Surgery; Dr. George W. Crile, Cleveland, Ohio.

The Scope of Physical Examination in Industry; Dr. C. D. Selby, Toledo, Ohio, formerly Consulting Hygienist, United States Public Health Service.

The Industrial Clinic; Dr. D. L. Edsall, Dean, Harvard Medical School, Cambridge, Mass.

Health Education in Industry; Dr. W. A. Evans, Chicago. Coordination of Industrial and Community Health Activities; Dr. C. E. Ford, General Chemical Company, New York City.

Following the morning session of the Health Service Section on Friday, October 3, a general session was held in the afternoon with "Health" as the subject of discussion, Dr. Lauffer presiding as chairman.

INFLUENZA FATALITIES EXCEED BATTLE CASUALTIES 10 TO 1

The rate of mortality which American life insurance companies had to meet in 1918 was about 32 per cent greater than in 1917, and 14 per cent higher than the average death rate for a score of years.

This is the statement in a summary made public by the insurance press, reviewing the life insurance distributions last year by insurance organizations operating in the United States and Canada, including the transactions of the bureau of war risk insurance.

Ten persons died from influenza for each American soldier killed in battle, the report declares, placing the number of influenza deaths at a half million.

Stating that influenza was mainly responsible for the increase in the number of deaths, the report continues: "Thirty-eight life insurance companies paid \$93,000,000 more than in 1917 for death claims and endowments. The increase in death losses paid by legal reserve companies was approximately \$123,000,000 in the United States and Canada, on lives under the age of 50."

The Insurance press confirms a report of the Connecticut Insurance Company that war claims, meaning all deaths suffered by men in the service not including influenza were equivalent to about a 6 per cent increase over normal mortality. On that basis the war losses by life insurance companies of the United States in 1918 amounted to \$23,000,000.

War mortality, it is stated, will continue in a decreasing proportion for from five to ten years, inasmuch as wounds, diseases contracted, effects of poison gas, shell shock, etc., will impair many lives.

Tuberculosis, it was said, was the basis of nearly 50 per cent of all claims by one company, under the total disability provision of its policies while only 4 per cent resulted from accidents.

Influenza Prophylaxis

AVACCINE prepared from the bacteria which were found to be the chief infecting agents of influenzal pneumonia should afford the greatest degree of protection against influenza and its complications.

All the cultures used in the preparation of **Influenza Prophylactic Lederle** were isolated from cases of influenza in the recent pandemic. They include the influenza bacillus of Pfeiffer; the four types of Streptococcus hemolyticus as classified by Dochez, Avery and Lancefield; the Rosenow strain of Streptococcus viridans, and the Mathers coccus and other green-producing streptococci isolated at Camp Meade; also the three fixed types of pneumococci as originally classified by Cele.

The complete prophylactic treatment consists of three doses injected subcutaneously. The interval between injections is preferably five days, but shorter or longer periods may be used.

	1st Dose	2nd and 3rd Dose
B. Influenzae	500 Million	1000 Million
Streptococcus hemolyticus	500 "	1000 "
Streptococcus viridans	500 "	1000 "
Pneumococcus Type I	1000 "	2000 "
Pneumococcus Type II	1000 "	2000 "
Pneumococcus Type III	500 "	1000 "

PACKAGES

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8 Immunizations in 20 cc vial	\$3.50
2 Immunizations in 5 cc vial.....	1.00
1 Immunization in three vials	1.00
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Borden's Malted Milk offers the tissue-building and invigorating nutrition of clean, wholesome milk and sustaining cereals in a partially predigested form.

These invaluable ingredients are combined by an exclusive process of preparation whereby malt ferments acting on the proteins convert them to partial peptones.

This partial predigestion makes Borden's Malted Milk unequalled as a tonic-food for convalescents, dyspeptics and aged people. It supplies maximum nourishment with a minimum strain on the gastro-intestinal tract.

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RED CROSS NUTRITION LABORATORIES

Perhaps in no other field of welfare work is the need so great nor the results to be achieved more important than the wide dissemination of the knowledge obtained of the nutrition laboratories of the country, and its application to the correction of the unthinkable conditions of poor hygiene, sanitation, and nutriton that prevail in practically every part of the country.

Without proper and adequate food children cannot grow strong in mind and in body, nor can adults be well and do effective work unless properly nourished. Many diseases, such as beriberi, scurvy, pellagra, etc., may be cured by proper feeding. The subject of foods and nutrition is equally as important as hygiene, sanitation, or physical training, and the need of supervision and special instruction in dietaries prescribed by physicians has been no small factor in promoting the hospital social worker, and the work of such agencies as the instructing visiting housekeeper.

But help from time to time from outside agencies is but a temporary makeshift in meeting the situation. Only a small percentage of the housewives of this nation, upon whom lies the responsibility of the feeding of the family, have ever received any instruction in this subject. To supply the crying need of such instruction, the Red Cross has planned an elementary course in Home Dietetics for women.

Scientifically trained women, nutritional experts, and dietitians must stand ready to spread this information. The American Red Cross makes an earnest appeal to those women who are competent to teach dietetics, and to those institutions equipped with class rooms suitable for the use of such classes, for help in promoting this work. Dietitians desiring to instruct classes in home dietetics must enroll in the Red Cross Dietitian Service.

The course in home dietetics as outlined deals with elementary principles; it shows the comparative value of foods; the necessity for a well-balanced diet for adult and child, sick or well; and points out the practical application of the underlying principles of dietetics to buying, cooking and serving food in the home.

The outline of the course is as follows: Planning the day's food; food and what it does for us; vegetables and fruits; the body's need for protein; milk, the indispensable food; meat, fish and eggs; cereals, the best return for your money; bread; sugar and sweets; fats; beverages and food accessories; buying and checking up the food supply; infant feeding; children's food; special feeding.

The course will include lectures and discussions on foods and nutrition; home work, demonstrations, exhibitions, references, and general bibliography. Supplementary posters or pictures accompanying each lesson which may be used as illustrative material in the class room. If a teaching center desires to give individual practice in cookery to a class, the course may be expanded to include this; or demonstrations, exhibitions, etc., may be changed to practical class work.

Vetoes Pennsylvania Mosquito Act

On the ground that the measure recently adopted by the Legislature of the State of Pennsylvania will not rid the state of the breeding places which produce mosquitoes, Governor Sproul has vetoed the act. Through a typographical error of omission, a misstatement occurred in a previous issue of MODERN MEDICINE regarding the vetoing of this measure.

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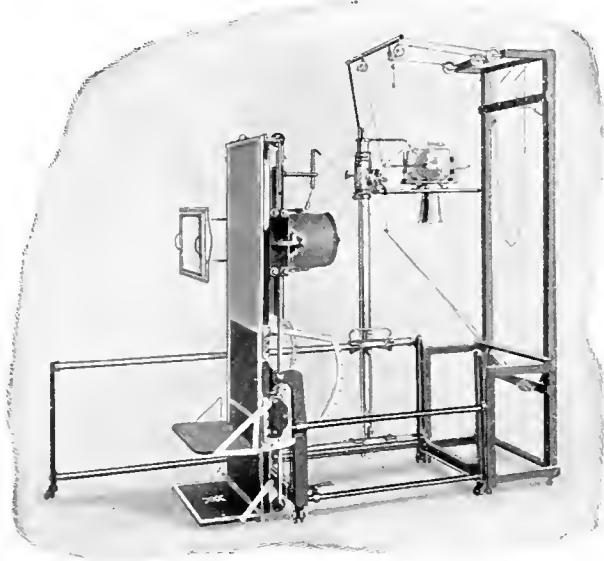
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Oklahoma Public Health Meeting

The second annual Oklahoma State Public Health Conference was held in Oklahoma City, September 23 and 24, under the auspices of the Oklahoma Tuberculosis Association and the State Department of Health.

INVESTIGATION OF THE WORKMEN'S COMPENSATION FUND OF OHIO

In 1913 the state of Ohio created a monopoly of workmen's compensation insurance in a state fund in which all employees except self-insurers were compelled to be insured. This fund has been the target for much criticism from opponents of state funds. It was claimed loosely that the fund was insolvent, and there was general mismanagement. Acting upon the request of the Ohio Federation of Labor, the Ohio Manufacturers' Association and the state Auditor, a comprehensive survey was conducted by expert actuaries and statisticians. The *Ohio Medical Journal* remarks as follows:

"The outstanding result of the investigation is that the state fund is and has at all times been strong and solvent, and that it has been conducted with 'economy unprecedented even in state funds the world over and at about one-twentieth the expense in insurance companies conducted for profit.' The Ohio fund, measured by the actual volume of benefits insured, has now become the largest carrier of compensation insurance in this country. The fact that the fund has attained this commanding position in volume of business and in financial strength is considered by the auditors as convincing proof of wise and conservative management.

"Aside from its judicious management of financial matters, the Commission has manifested every disposition to deal fairly and even liberally with injured claimants, the report shows. Careful scrutiny of several thousand claim records failed to disclose any evidence of denial of claims by the commission on technical or overstrained grounds.

"A like spirit has been manifested in the medical follow-up of accident cases, the records of serious injuries especially containing detailed medical reports. In a large proportion of cases the records revealed expensive operative procedure and prolonged hospital care.

"The Commission was commended for its recent action in rescinding the ruling requiring advance authorization before the sum of \$200 could be expended in the care of any particular case for medical, hospital, and nursing service.

"The only operative defect is declared to be the delay in handling claims, and this is attributed to the totally inadequate appropriations for carrying on the work and ritualistic procedure required for establishing claims.

"Recommendation is made that a careful budget of financial requirements be prepared and submitted to the legislature, accompanied by data revealing in what regards work is delayed or service skimped by reason of 'too relentless economy.' An adequate appropriation would permit the employment of a larger staff and a more or less general increase in salaries.

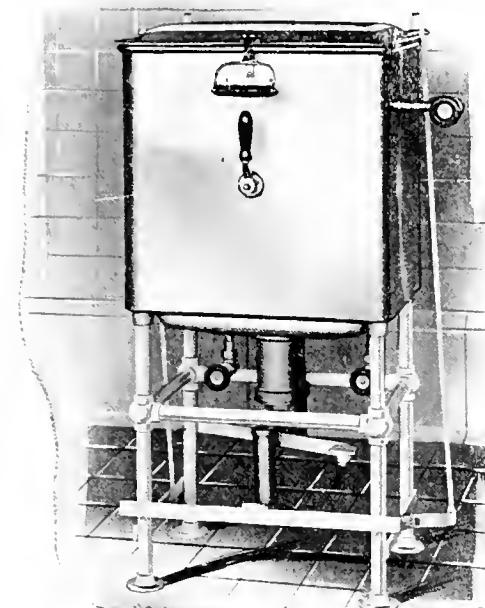
"These recommendations coincide with the position which the Association has persistently maintained: That a sufficiently large force in the medical department, adequately compensated, would not only insure prompt and efficient handling of workmen's compensation cases, but would facilitate the dealings of the profession with the Commission. "The claims division has a total of ninety-

(Continued on page 38)

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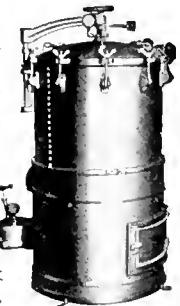
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Doctor's, \$70 Medium, \$100 Hospital, \$165

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- The Malaria Problem in Peace and War.*
- The Sanitary Progress and Vital Statistics of Hawaii.*
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INVESTIGATE COMPENSATION FUND

(Continued from page 36)

three full-time employees, including seven field investigators, to handle an annual volume of over 150,000 claims. 'There is crying need of more and better paid deputies, referees, medical examiners, and field investigators, to establish prompt touch with beneficiaries and facilitate the hearing of claims,' the report says.

"The salaries are miserably insufficient to attract and retain capable men for the responsible positions. Medical examiners receive from \$2,000 to \$3,500 per annum. The director of claims receives only \$2,400 for directing the claims department which has the immense premium income of \$1,000,000 per month.

"Regarding the obligation of the state to pay higher salaries to the men who are primarily responsible for the determination of claims, and to vest them with larger discretion, Mr. Downey says: 'It is physically impossible that the Commission should actually pass upon more than a minute fraction of compensation claims. In the vast majority of cases, the decision of the claim examiners in the office or of the claim investigator in the field, of the medical examiner, the referee, or at most the director of claims will become in effect the decision of the Commission. If these men, in their several ascending grades, possess the requisite training and experience and are vested with appropriate discretion, the procedure will take on a character of flexibility and dispatch.'

"At present the Commission requires, as a basis for establishing a claim, a formal application from the claimant, supported by the employer's report of accident and by a medical report. Failure to receive any of these documents means delay. In the following statement, in which dilatory doctors receive their share of censure, the auditors are frank to discredit his 'red tape' procedure and suggest its curtailment: 'Application from the claimant is required upon purely legalistic grounds. . . . In most cases, indeed, the application is a matter of form, the blank being filled out and the applicant's signature secured by the employer himself. But the employer is sometimes averse to the payment of compensation and the injured man is often ignorant of his rights or incapacitated by his injury from filing a claim. The medical report, again, is required to establish the fact of disability. This requirement is the more reasonable in that practically every compensable accident requires medical attention. Medical men, however, are notoriously negligent in the making of reports. To withhold compensation for weeks or months pending the report of the attending physician is to inflict unmerited hardship, not upon the delinquent doctor, but upon his hapless patient. Numerous instances were found of such delay in cases where no medical report was filed to establish the fact of disability. It needs no expert testimony to prove that a man with a broken leg will be disabled for several months or that a coal miner "caught by a fall of slate" has sustained compensable injury. The remedy is neither far to seek nor difficult to apply. The employer's notice of accident is, or can readily be made, *prima facie* evidence of a compensable accident.'

"Among other suggestions for extension work which would be possible under an adequate appropriation Messrs. Downey and Dawson recommend the careful compilation for future reference of statistics accumulated under the Workmen's Compensation Act, and reinforcement of the accident prevention work undertaken by the Commission in an effort to reduce the number and seriousness of industrial accidents."



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180 MEN OF THE A. E. F. BLINDED

Latest reports give the number of American soldiers of the A. E. F. blinded in the war to be 180. Re-education means much for this class of men, and about one-third of these blinded soldiers are now availing themselves of the opportunities for training under the direction of the Federal Board for Vocational Education.

Poultry raising has been tested and proved to be a lucrative vocation for blinded men. With the assistance of members of their families these blinded soldiers are making good at it. Osteopathy and massage are attracting others as occupations desirable for the blind.

The policy of the Board in building upon the past experiences of disabled soldiers in fitting them for future employment is adhered to in its dealings with the blinded. In following this policy, an insurance man and a druggist are training in their old lines of work, learning to "carry on" in the old way in spite of their handicaps.

BOOKS RECEIVED

[Comment on current medical and health literature will be found on page 548, in the department, "Books of the Month."]

THE HOUSING OF THE UNSKILLED WAGE EARNER. America's Next Problem. By Edith Elmer Wood. Cloth, 12mo, pp. 321, \$2.25. The Macmillan Co., New York, 1919.

EMPLOYMENT PSYCHOLOGY. The Application of Scientific Methods to the Selection, Training, and Grading of Employees. By Henry C. Link, Ph.D., Cloth, 12mo, pp. 440, \$2.50. The Macmillan Co., New York, 1919.

NERVE CONTROL AND HOW TO GAIN IT. By H. Addington Bruce. Author of "The Riddle of Personality," "Handicaps of Childhood," etc. Cloth, 12mo, pp. 307, 4th Ed. Funk & Wagnalls Co., New York, 1919, \$1.00.

MILK. By Paul G. Heinsman, Ph.D., director of the laboratories of the United States Standard Serum Co., Woodworth, Kenosha County, Wis. Cloth, 8vo, pp. 684, 237 illustrations, \$6.00. W. B. Saunders Co., Phila., 1919.

ANIMAL PARASITES AND HUMAN DISEASE. By Asa C. Chandler, M.S., Ph.D., instructor in zoology, Oregon Agricultural College, Corvallis, Ore. Cloth, 8vo, pp. 570, illustrated, \$4.50. John Wiley & Sons, Inc., New York, 1918.

THE HEALTH OFFICER. By Frank Overton, A.M., M.D., D.P.H., sanitary supervisor, New York State Department of Health, and Willard J. Denno, A.B., M.D., D.P.H., medical director of the Standard Oil Co.; formerly secretary of the New York State Department of Health. Cloth, 8vo, pp. 512, 51 illustrations, \$4.50. W. B. Saunders Co., Phila., 1919.

AIR, WATER, AND FOOD FROM A SANITARY STANDPOINT. By Alpheus G. Woodman, associate professor of food analysis, and John F. Norton, associate professor of chemistry and sanitation, Massachusetts Institute of Technology. Cloth, 8vo, fourth edition revised and rewritten, pp. 248, illustrated, \$2.00. John Wiley & Sons, Inc., New York, 1919.

DISEASE OF THE HEART. Their Diagnosis, Prognosis, and Treatment by Modern Methods. With a Chapter on the Electrocardiograph. By Frederick W. Price, M.D., F.R.S. (Edin.), physician to the Great Northern Central Hospital; assistant physician to the National Hospital for Diseases of the Heart, London. Cloth, 8vo, pp. 472, illustrated. Oxford University Press, New York, 1918.

INDUSTRIAL NURSING. For Industrial, Public Health, and Pupil Nurses, and for Employers of Labor. By Florence Swift Wright, R.N., Bureau of Child Hygiene, New Jersey State Department of Health; formerly secretary of the benefit association of the employees of John Wanamaker, New York; and formerly in charge of industrial nursing for both the Cheney Brothers' Silk Mills and the Clark Thread Company. Cloth, 12mo, pp. 179. The Macmillan Co., New York, 1919.

(Continued on page 42)

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians
& for Others Interested in Administrative, Industrial
& Social Health Problems

Editors ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., and JOHN A. LAPP, LL.D.

Managing Editor JOHN A. LAPP

Editorial and Business Offices, 58 EAST WASHINGTON STREET, Chicago

Volume 1.

NOVEMBER, 1919

Number 7

NOTES AND COMMENT

THE FALL CONVENTIONS

THE months of September and October have been especially productive this year in medical literature in the form of papers read at annual conventions. Beginning with the American Hospital Association and Allied Associations, there were several conventions held in quick succession. The International Association of Accident Boards and Commissions directed a large part of its program to industrial medicine. The National Safety Council directed one general meeting and two sectional meetings to industrial health. The Clinical Congress of Surgeons and the American College of Surgeons gave the usual strong program, and the American Public Health Association finished up the month of October with a broad program of public, industrial, and social health. There were also large numbers of state and sectional meetings of industrial, public health, and industrial bodies.

These conventions following close upon each other with the discussions of similar problems in each suggest the need for a better correlation of effort and a coordination, at least in time and place, so that the energy now expended in travel might be conserved for the purposes of the conventions. Industrial and public health officials could not afford to miss any one of the conventions held in September and October, and yet on account of distances very few could afford to go.

With the conventions ended, forward-looking men and women are turning their attention now to the furtherance of the plans and work which have been under discussion. The conventions of next year should disclose the practical good that is to spring from this season's meetings.

DRY ENFORCEMENT AND PATENT MEDICINES

THE report of the legislative committee of the American Hospital Association calls attention sharply to the evident influence of patent medicine forces in framing the dry enforcement laws of states and the nation. Their statement follows:

"What have patent medicines to do with dry enforcement bills and hospitals?

"In the May number of MODERN MEDICINE, Dr. S. S. Goldwater has an article on 'The Care of the Sick in the United States in 1919.' He outlines the need of a medical program, and points out that the United States is a great nation suffering, among other things, from patent medicines. There are \$900,000,000 invested in patent medicines in the United States. With the adoption of the national prohibition enforcement laws, it looked for a time as if the patent medicine industry, which hospital people in general contend has been a great menace to public health, might be driven out of existence, and some of the sufferings of the nation eliminated thereby.

"This much desired result may not come to pass. In one state at least which has adopted state prohibition, the dry enforcement bill was written in the special interests of the patent medicine manufacturers to the detriment of public health. A repetition is possible in Congress; at least, it is possible that the national dry enforcement act may be so modified as to permit the patent medicine industry to continue, when, as all hospital people know, it should be killed, not injured. Are the seven thousand hospitals in the United States going to sit back and do nothing about it, or will

those represented at this convention give some instructions to their legislative committee? A communication direct from the convention to the Senate committee on this subject is suggested.

"When the next state legislatures meet, however, to write new dry enforcement laws, let the hospital and health workers beware. Many times will your help be needed in deciding legislative contests—patent medicines *vs.* public health."

The friends of prohibition might well be on their guard to prevent the results feared by the Association. They cannot afford to have the prohibition movement burdened with the patent medicine octopus, or to have the slightest suggestion of a willingness on their part to compromise with the patent medicine evil.

VITAL STATISTICS AND THE PHYSICIAN

CONDEMNATION of statistics is often heard and complaint is often made by physicians against the burdens imposed upon them in reporting facts of births, deaths, and diseases. These come from a misunderstanding of the value of statistics, both to the state and to the physician.

There is a stale joke constantly repeated that "Statistics lie and statisticians are liars." Many take this as the final condemnation of all statisticians and all statistics. The results are unfortunate.

The facts are that some statisticians may be liars, just as some members of other professions; but, it is the man who lies and not the statistician. Statistics may be made to lie, but so may words be made to lie. We do not condemn the English language because untruthful people combine words so as to tell an untruth. Statistics, in the hands of incompetent or immature statisticians, may be wrongly interpreted, but so may the facts in diagnosis of physical or social ills be misinterpreted. Given a statistician who knows his business and statistics which are carefully collected facts, the result will be an unerring interpretation. So unerring are such interpretations that the great business of insurance is built securely on the foundation of statistics, while practically all great business is grounded in one way or another on the interpretation of these basic facts.

The primary interest which the physician has in vital statistics is pointed out in this issue by Prof. George Chandler Whipple, of Harvard University. Vital statistics is regarded by the author as so important to the physician that he recommends that the subject be placed in the curriculum of the public health and pre-medical

schools. Elsewhere the same author has pointed out the national value of vital statistics.

"It is of the greatest importance to a nation that accurate records be kept of its vital capital, of its gains by births and immigration and of its losses by death and emigration; for a nation's true wealth lies, not in its lands and waters, not in its forests and mines, not in its flocks and herds, not in its dollars, but in its healthy and happy men, women, and children. A well man is worth more to a nation than a sick man; a man in the prime of life is of more immediate worth than an old man or a child; a married man is potentially a greater asset than a single man. Hence, in a nation's vital bookkeeping the number of people, their age and sex and conjugal condition, their parentage, their health, the rate of births and deaths, are matters of great moment. Their environment is also important; their concentration in cities and villages and congested areas, their mode of housing, their occupation, their state of intelligence, their economic condition, their knowledge of sanitation—all contribute to the sum total of their usefulness to themselves and to society.

"Vital statistics are useful for many purposes. To the historian they show the nation's growth and mark the flood and ebb of physical life; to the economist they indicate the number and distribution of the producers and consumers of wealth; to the sanitarian they measure the people's health and reflect the hygienic conditions of the environment; to the sociologist they show many things relating to human beings in their relation one with another."

The public health officer who senses deeply the responsibility that is entrusted to him knows that he must study diligently the statistics of morbidity from his own and other districts at all times if he is to perform his public function wisely and well.

CORRECTING SOME ERRONEOUS IDEAS ON TEMPERATURE AND HUMIDITY

IN this issue of Modern Medicine there appears the third of a series of articles by Ellsworth Huntington, of Yale University, on temperature and humidity in their relation to health. These articles, together with the author's work as published in "Climate and Civilization," form a distinct contribution to the scientific discussion of the subject and offset some of the pre-conceived notions regarding the bearings upon health of temperature and humidity.

Applying these principles to everyday life and the care of the sick, we present herewith a summary of the conclusions presented by Doctor

Huntington as they relate to hospitals and to the control of air conditions in sick rooms.

In determining the kind of air best adapted to sick-rooms there has been confusion along several far-reaching lines. The first is confusion between temperature and humidity. People feel cold on a zero day even with the thermometer at 70° F. indoors, whereas on an autumn day with a temperature of 65° they often sit beside the open window and feel perfectly comfortable. The reason is that the winter air, when heated, has a relative humidity of perhaps 15 per cent, and evaporation from the skin is so rapid that it is almost impossible to keep warm. The autumn day, on the contrary, has a relative humidity of perhaps 75 per cent. Hence there is little evaporation, and the skin feels warm and comfortable.

A second line of confusion relates to humidity alone without reference to temperature. At all seasons people are apt to confuse the effect of humidity in the air and of moisture condensed on the clothing or skin. The water vapor in the air, which is imperceptible to sight or touch except that it makes the air feel "soft," is usually beneficial except at high temperatures. Condensed water vapor, on the other hand, whether the water be in the form of droplets of fog, or of a perceptible wetness or clamminess of the clothing, bedding, walls, or skin, is usually harmful because it gives a chilly feeling.

A third line of confusion is between variability of temperature which commonly accompanies direct ventilation, and drafts. Many people recognize that the outside air possesses a most valuable tonic quality, but say that they can not stand even a slight draft blowing in from an open window. The enthusiast for ventilation insists on open windows; the delicate sufferer from colds or from age insists that he, or more often she will catch her death of cold, and so has her way. Both are right, for although outside air is good, most of us have lived so long under artificial conditions that drafts are likely to lead to chills.

In view of these facts the modern hospital physician is confronted by three great necessities. First, he must keep the temperature comparatively low, averaging not far from 65° F., but he must not let it feel cold. Second, for this reason and still more because moist air is good for the human system, he must install a humifying system which will keep the relative humidity up to 50, 60 or even 70 per cent when the temperature is 65°, but which will not be so erratic that condensation will take place. Third, he must regulate the ventilation system so that the temperature of the air will vary frequently and there will be abundant movement, but yet so that there will

be no perceptible drafts. In a previous number we have discussed the first two points, but they may well be urged once more on our readers. The third point needs further discussion.

Recent experiments indicate that our old ideas of ventilation are quite wrong. We do not need ventilation because of the exhaustion of the oxygen in the air, or the accumulation of carbon dioxide, for even in the Black Hole at Calcutta it is doubtful whether those two processes had gone far enough to kill the British soldiers. Probably one of the chief reasons for ventilation is that certain toxic substances are given off in the breath, and these may act as poisons, thus leading to discomfort, sickness, and finally death, although this is not yet certain. Constant, though slow movement of the air is probably essential in order to carry away such toxins. There is also another and, under normal conditions, equally important element involved, namely, variability.

Turn for a moment to the outside air. No one doubts its efficacy. In our best hospitals we go to no end of trouble to get our patients out of doors. Why is the outer air so efficacious? And why do we get such poor results when we take the same air and after freeing it from dust carefully pour it into our wards in a full and steady stream? The experiment has been tried time and again, and the result is invariably less satisfactory than ordinary outside air, even when that has to be let in through the windows. When the New York Ventilation Commission tested such an ideal system of ventilation in comparison with window ventilation where the element of drafts was removed, it found that among several thousand children those in the rooms with the "ideal" ventilation had 136 per cent more colds and other minor respiratory diseases than had the others, and 30 per cent more absences due to respiratory diseases. Certainly the freeing of the air from dust cannot cause more colds. Nor can the quantity and movement of air in the two cases make any appreciable difference. Why then so great a difference between outside air and "ideal" inside air?

The answer seems to be variability. Suppose one is living out of doors. On a clear day the temperature changes constantly in its rise from morning to noon or later, and in its fall the rest of the day. Each cloud that sweeps across the sun brings a temporary change of several degrees; each little breeze makes the air feel cooler; you move into the shade or the sun gets around the corner, and again there is a change. Even on a still summer day the number of changes experienced out of doors runs into dozens. If you doubt the stimulus of such changes, which no

sane man does, put your head out of the window some day when your windows all have been shut, and see how much more eagerly you attack your work after a few minutes of outside air.

On the other hand, take a series of days when the temperature remains the same day and night, as it sometimes does in damp weather. The dampness itself may be beneficial, but the total effect is bad.

The measured work on factory operatives shows that they unconsciously work slowly during periods when the temperature remains the same day after day.

Our modern system has been based on the false assumption that uniformity is desirable. We must go back to Nature's ways, for man's evolution during untold millions of years was always outdoors, and so continued for hundreds of thousands of years after he became man instead of beast.

How foolish of us to suppose that we can suddenly change an adaptation which is the fruit of millions of years of evolution. Hence our aim should be to make the air in our hospitals and houses exactly like the best outside air—like that of the pleasant days when we bubble over with joy because spring has come, or of the glorious autumn

SURGEON GENERAL IRELAND HONORED BY FOREIGN SURGEONS



Maj. Gen. MERRITTE W. IRELAND, Surgeon General, M.C., U.S.A.

An honorary fellowship has been conferred upon Major General Merritte W. Ireland, Surgeon General of the United States Army, by the Royal College of Surgeons of Edinburgh, Scotland. This honor, which is paid to but one representative of each group of medical forces of the British Empire and its Allies, is the last of many which have come to this noted American surgeon.

Merritte W. Ireland was born at Columbia City, Ind., May 31, 1867, and is now in his 53rd year. He was graduated from the Detroit College of Medicine in 1890, his graduation being followed by an internship in St. Mary's Hospital, Detroit. He is also a graduate of Jefferson Medical College, Philadelphia. In 1891 he entered the service as first lieutenant and assistant surgeon. During the Spanish-American War, he served with the Fifth Army Corps in Cuba. In 1899, he was promoted to surgeon with the rank of major. Shortly afterward, he went to the Philippine Islands. In 1900 he was honorably discharged from volunteer service. Two years later he entered the office of the Surgeon General and in 1903 was promoted to major and surgeon. He became lieutenant colonel in 1911. He accompanied General Pershing to Mexico as surgeon of the expeditionary forces.

When General Pershing went to France he accompanied him as chief surgeon of the American Expeditionary Forces. The rank of brigadier general was conferred upon him in May, 1918. In October of the same year he was promoted to Surgeon General in the Expeditionary Forces with the rank of Major General.

days when we say the air is like wine.

Of course it is not easy to accomplish all this, but an important step can be taken at slight expense in every hospital at once. That step is to provide the base of every window with a ventilator in the shape of a board or glass so fitted that the window can be opened a few inches without creating a draft. In addition large numbers of screens should be provided so that every patient can be well screened from drafts. Then insist that the nurses open the windows at regular intervals no matter whether the rooms are getting too warm or not.

It is equally necessary besides to insist that the nurses watch the patients with great care to see that none are subject to drafts and that none are chilled. Also the heating apparatus must be so regulated that it responds to the extra call when the rooms are cooled, for the danger of keeping the rooms too cool must of course be avoided. What the patients need is the stimulus of a brief cool spell, like a mild, cold bath, or like a cloud passing over the sun on an autumn day. If such an autumn day is taken as a model, and if the nurses are taught that air is just as important as food, the winter harvest of deaths can be greatly reduced.

VITAL STATISTICS AND THE PRACTISING PHYSICIAN

BY GEORGE C. WHIPPLE, PROFESSOR OF SANITARY ENGINEERING, HARVARD UNIVERSITY, CAMBRIDGE, MASS.; MEMBER OF THE PUBLIC HEALTH COUNCIL, MASSACHUSETTS STATE BOARD OF HEALTH.

OF all the people in the world no class is brought so closely into contact with the vital facts of human existence as physicians,—these vital facts being birth, growth, sickness, and death. In order that physicians may be of greatest service, and practise their calling in the safest and best way, they must be properly educated in medical theory and acquire skill by experience in the hospital and the home. But they must do more than this; they must keep abreast of the times by contact with the work of other physicians, specialists, and scientists in order that they may be ready always to use the best means to a given end. They must also have some way of checking up the results of the methods which they and their associates are using. How can this be done?

Cumulative Experience in Statistics

Experience is the best teacher; and personal experiences make the strongest impressions; but the accumulated experience of many, reinforced by personal experience, is the best of all. A group of doctors meet. One says, "I had a case like this and it progressed thus and ended thus." Another says, "I also had a case like this, etc." And so say several others. Finally, as the facts multiply, some one sums it up and says, "Let us see; how many cases recovered and how many died?" Sooner or later an accumulation of facts has to be expressed by figures; and facts expressed by figures are statistics.

The Powerful Tool of Figures

The world is large today; the medical profession is large. The very largeness of it is making it necessary for physicians to accumulate ideas by studying statistics. No intelligent physician can escape using them. He may think them dry,—and so they are if one does not visualize the facts for which the figures stand,—but he must use them, nevertheless. And now comes the difficulty

THINKING IN LARGER TERMS

If a physician's records are incomplete, or if he draws conclusions not justified by his data, faulty methods and faulty logic, and not statistics, as such, must be incriminated.

If a physician wishes to have his day's work contribute to the sum total of scientific achievement, he must know what statistics are, and what they are not, and must learn to express vital facts in figures.

The process of deduction, the mental habit of analysis, comparison, and appraisal are the logical outgrowth of statistical methods.

need to be made clear and some statistical methods which need to be well understood.

Mature Habits of Critical Study

In teaching vital statistics to classes which included a number of physicians who had been several years out of the medical school and many years away from their study of arithmetic and algebra, it has been interesting to see how at first these older men lagged behind the younger; but how after they had gotten over their first fright and prejudice, they have come to understand the statistical processes as well as, if not better than, the younger men. Perhaps this is because they have a better appreciation of the facts for which the figures stood. I am therefore convinced that physicians would derive not only a benefit but a real pleasure from a cultivation of the habit of studying critically the many statistical investigations found in medical journals and public health reports.

Do Figures Always Lie?

But someone says, "You can't trust statistics; they are so apt to lie." This statement needs explanation. Statistics are facts expressed in figures, and facts are facts. It is possible to misuse facts, so that they will lie; and it is easier to misuse figures when they are divorced from the facts for which they stand. The fault is not with the statistics, but with the logical processes used. An appreciation of the few simple laws of logic will enable one to keep his statistics from playing

—many physicians do not know how to use statistics. They say they never did like mathematics. Perhaps that is why they became physicians instead of engineers. Not liking figures, they tend to ignore them and thus gradually lose one of the powerful tools of their own profession. As a matter of fact, the mathematics used in every-day statistical work is very simple, but there are some statistical terms which

tricks. Logic is none too common in this world. Logic requires the exercise of grey matter, and the easy way out is to say that "statistics lie." When a man says that statistics lie, you may know that he is too lazy to think straight. "Statistics may be used by the unscrupulous to fool the unwary, and by the innocent to fool themselves," but a person who has been taught statistical processes and the elementary laws of logic need not fear the largest array of figures.

The Physician's Responsibility

The first reason, therefore, why physicians should study statistics is for their own self-improvement. The second reason is because many of the most important facts of vital statistics originate with physicians. The laws of our states require that births and deaths be reported to some proper authority, and there are penalties for failure to report. Certain communicable diseases must also be reported as soon as recognized. Physicians as a class are negligent in performing this public duty, and the laws imposing fines for failure to make reports have been imperfectly enforced.

A city clerk gave as a reason for not imposing a just fine on a persistent violator of the law, "Oh, we are too good natured in this office." As a result, the city's birth-records were grossly incomplete,—so obviously incomplete that on the first of each year a house to house canvas had to be made in order to find out how many births really took place in the city during the previous year. There are refreshing signs of a change on the part of the medical profession; and the American Medical Association now has before it the suggestion that failure to comply with the law in regard to reporting shall be deemed to be unprofessional conduct. The real way to secure complete reports, however, is for the physicians themselves to become interested in statistics and realize the part which they themselves play in building up a structure of vital statistics in this country which will be useful to all citizens, but especially to the medical profession.

The third reason is that in the new order of society the practising physicians are likely more and more to assume public functions. Co-operating with the Federal, state, and local health authorities on one side, they come into personal contact with the people on the other. This latter relation has long existed. It is the relation to the health departments which is to be strengthened. The diagnosis of disease and the preparation of various vaccines and antitoxins have already established this relation; the epidemiological investigation of outbreaks of communicable

disease gives another point of contact and the results of these studies are reported in statistical terms. Physicians must know how to contribute the necessary facts for such studies, and how to use the results when presented in statistical form.

An Index of Health Conditions

For many years the general death rate has been used as an index of the health conditions in a community. We now know that this crude death rate, standing alone, means little. The make-up of the population has to be considered, the ages, sex, and nationality of the people, their occupation, their mode of life. We need to study specific rates, and physicians ought to know how to compute them and use them. The process is not difficult. We are more and more talking about life tables. What are they and what do they mean? Life insurance agents must not be allowed to monopolize this field. Biological studies have emphasized the importance of variation. The "average" is not the only, it is often not the best, quantity for generalizing an array of statistics. A knowledge of the ordinary laws of chance or probability is essential to a true understanding of statistics. Indeed, it may be said that an understanding of specific rates and of the theory of probability lies at the foundation of the interpretation of vital statistics.

The ability to take a general death rate and analyze it, to appreciate the statistics necessary to the understanding of the prevention of some particular disease in a community, to use statistics in unraveling the mystery of some epidemic, is a power worth while for a physician to have.

It may be interesting to physicians to know that greater attention is being given to the subject of vital statistics in the schools than formerly. It is one of the required courses in the schools of public health, such as those at Harvard University and the Massachusetts Institute of Technology, Yale University, and Johns Hopkins University. This year for the first time it is offered in Harvard College as one of the pre-medical courses. This is probably a better place for it than in the medical school, for several reasons. The college students are not as far removed from their mathematics as medical students; the course is a broad one which involves principles useful in professions other than medicine and public health; it gives students a bird's eye view of disease classification before studying diseases in detail; it leaves the time in the medical school free for the strictly medical courses.

Looking at the subject in its various aspects, it may be safely asserted that there is a rapidly growing interest in vital statistics in America.

AIR CONTROL AND THE REDUCTION OF THE DEATH RATE AFTER OPERATIONS

ELLSWORTH HUNTINGTON, PH.D., RESEARCH ASSOCIATE IN GEOGRAPHY, YALE UNIVERSITY, NEW HAVEN, CONN.*

Part II. Variability

THE preceding part of this article contains repeated reference to variability as one of the most important elements in the control of the air. We are now ready to discuss the matter in detail. In the first number of MODERN MEDICINE figures were given showing the relation of about 400,000 deaths in New York City during a period of eight years to the weather on the day of death. The figures showed conclusively that when all sorts of ailments are averaged together the general death rate at all seasons varies in close harmony with changes in temperature. In summer and winter alike a drop in temperature is at once followed by a drop in the death rate, while a rise is followed by a rise in the death rate. In the same way, if the temperature from one day to the next remains constant, the death rate on an average also remains constant.

Why the Death Rate Drops with Temperature

That this should be the case in summer is quite to be expected, for everyone knows that hot weather is depressing and that a cool wave is stimulating. But why should it be true in winter? Cold weather is certainly harmful in the long run, as is proved not only by common experience, but by a detailed study of million of deaths. Moreover, sick people who are on the point of death are guarded from the outside air more carefully than any other group. How then can they be at once benefitted by even a slight drop in the outdoor temperature? Elsewhere I have suggested that the case is analogous to a cold bath. The shock of the cold air, like the shock of cold water, is presumably stimulating and has a good effect on health provided it does not last long enough to cause a chill. That explanation may apply to persons who are in good health and who

The idea that uniformity of temperature and of weather is beneficial appears to be wrong. Constant, but not excessive variability appears to be beneficial in almost all diseases, as well as for persons in good health.

In surgical operations this is particularly important. Except in the most extreme weather operations performed when there is much variation from day to day have a far greater chance of success than have those performed when the weather remains the same day after day.

In every hospital and sick room, as much attention should be paid to ventilation as to meals.

came in contact with the outside air often enough to receive its effect, a contact which requires only a few minutes. It does not seem satisfactory, however, for patients who are carefully kept from such contact.

Accordingly, let us inquire by what possible means a drop in the outside temperature can affect the health of patients who are secluded as carefully as possible from every outside in-

fluence. Only two possibilities seem to present themselves. In the first place, changes in temperature are always accompanied by changes in humidity. This fact, as we have already seen, goes far toward explaining why cold weather has so bad an effect on health even when people are kept warm, but it does not help in explaining the stimulus of a cold wave. In fact, it would lead us to expect cold waves to be harmful. Not only is the capacity of cold air for moisture less than that of warm, but, as a rule, the air of cold waves in the eastern United States, with which we are now dealing, contains an unusually small percentage of moisture in proportion to its capacity, for it comes from the dry interior. Since dry air, except at high temperature, is harmful, the conditions of humidity in cold waves would tend to increase, not diminish the death rate.

The second possible means by which cold waves may stimulate sick people is through their effect on the variability of the air. Every one who has cared for a furnace knows that, when the temperature begins to drop out of doors, there is at once difficulty in keeping the house at the uniform temperature which is mistakenly supposed to be ideal. Not only the actual drop in temperature, but the wind which almost always accompanies it causes the temperature indoors

*The second of a series of two articles. Part I was published in the September issue of MODERN MEDICINE.

to fall. Then the furnace draft is opened and, more often than not, the house soon becomes too warm. Next the windows are opened a little, and the temperature falls. So it goes, first this way and then that.

In many houses it is much easier to preserve a uniform temperature on a perfectly quiet day when the temperature stays steadily near zero, or only rises in response to the sun, than on a windy, blustering day when the thermometer falls from 30° one morning to 20° the next morning at the same hour. As a matter of fact, even the houses with the best heating system and the most solid, wind-proof walls are practically certain to be much more variable when the wind is blowing and the outside temperature falling than when the air is quiet and the temperature is either stationary or else gradually rising under the influence of one sunny day after another.

Variability Stimulating and Helpful

In spite of the common prejudice to the contrary, such variability is stimulating and healthful. This does not mean that drafts which cause a chill are desirable. They are merely an incidental feature which is a drawback in so far as people have lived under bad surroundings to such an extent that they have lost their power of resistance. The temperature can vary, however, without causing drafts. The effect of such variations is well illustrated in theaters and other large auditoriums where a change of a few degrees by reason of slowly descending cool air may wake up a dull audience and make it enthusiastic. In temperature, as in many other things, a uniform optimum is not nearly so good as frequent variations in one direction and the other. No one advocates a uniform diet even though it be ideal. If an absolutely ideal meal could be set before people three times a day for a year, does anyone believe that the persons thus fed would be as well as if they had been served with a great variety of good meals no one of which was quite so perfect as the ideal?

It is just the same with the air. We try to have uniformly ideal air in our houses in winter, and thereby we make two grave mistakes. In the first place, as has been pointed out in connection with humidity, we do not actually achieve the ideal, because as yet we scarcely know what conditions of moisture are really right; and in the second place, we try to attain uniformity, which is a mistake. Fortunately, while a cold wave is in progress we rarely succeed in obtaining a uniform temperature, and thus

although the dryness of the wave may do harm this effect is often overcome and reversed by the good effect of the attendant variability.

Now let us turn to operations. Only those which were followed by death after one to ten days are used in Table VII which sums up the whole matter for the Boston City Hospital. For the Massachusetts General Hospital the data are similar, but since our tables for that hospital include deaths more than ten days after the operations they are not included. Table VII shows the deaths per day after operations which were performed when the change of temperature indicated at the top of the table took place between 8 a. m. of the day of operation and 8 a. m. of the succeeding day. The response to changes of temperature is somewhat different in winter and in the remainder of the year, as appears in the two upper portions of the table. For example, from December to February there were 101 days when the temperature fell 9° or more from 8 a. m. to 8 a. m., and the operations performed on these days were followed by 38 deaths, or an average of 0.376 per day. The 52 days with a drop of 4° to 8° account for 19 deaths, or 0.365 per day, and so on until the 99 days with a rise of 9° or more account for 30 deaths or 0.303 per day.

Clearly the death rate after operations in winter is high when the operations were performed at the time of a marked drop of temperature and diminishes systematically as the drop decreases or as its place is taken by a greater and greater rise of temperature. This does not agree with what we have said as to the 400,000 deaths in New York, but this involves no real discrepancy. Patients who are undergoing operations, as we have seen, are peculiarly sensitive to humidity. Cold waves diminish the humidity; moreover, they are usually followed by periods of low temperature and dryness. Thus, although the variability arising from the drop in temperature may be beneficial, the dryness more than counteracts this.

In the next section of Table VII we see that during the rest of the year, from March to November, the death rate is lowest, 0.198, when the temperature drops most rapidly; it increases to

TABLE VII
DEATHS PER DAY AT AN INTERVAL OF 1 TO 10 DAYS AFTER OPERATIONS AT THE BOSTON CITY HOSPITAL PERFORMED ON DAYS WITH VARIOUS CHANGES OF TEMPERATURE FROM 8 A. M. OF THE DAY OF THE OPERATION TO 8 A. M. OF THE NEXT DAY.

	Drop of 9° or more	Drop of 4°-8°	Change of 3° or less	Rise of 4°-8°	Rise of 9° or more
Dec.-Feb.	0.375 (38-101)	0.365 (19-52)	0.326 (31-95)	0.315 (23-73)	0.303 (30-99)
Mar.-Nov.	0.198 (25-126)	0.232 (47-203)	0.343 (201-586)	0.331 (88-266)	0.292 (36-123)
Mar.-May	0.233 (10-43)	0.226 (14-62)	0.495 (105-212)	0.438 (42-96)	0.403 (21-52)
June-Aug.	0.229 (8-35)	0.187 (14-75)	0.293 (65-222)	0.279 (26-93)	0.281 (9-32)
Sept.-Nov.	0.146 (7-48)	0.288 (19-66)	0.204 (31-152)	0.260 (20-77)	0.154 (6-39)

a maximum 0.343, when the change from day to day is at a minimum; and falls again to 0.292 when there is a rise of more than 9°. This same relationship is evident in the shorter seasons into which the rest of the table is divided, although the figures are not quite so regular because of the comparatively limited body of data.

TABLE VIII

DEATHS PER DAY AT BOSTON CITY HOSPITAL AFTER OPERATIONS
PERFORMED UNDER VARIOUS CONDITIONS OF VARIABILITY OF
TEMPERATURE.

	Change of 9° or more in either direction.	Change of 8° in either direction.	Change of less than 3° in either direction.
Dec.-Feb.	0.340 (68-200)	0.336 (42-125)	0.326 (31-95)
Mar.-Nov.	0.245 (61-249)	0.288 (135-469)	0.343 (201-586)

From March to May the contrast between the favorable conditions of falling temperature and the unfavorable conditions of uniform temperature is particularly noticeable. From June to August it is not so striking, although clearly evident. In this section days with a rise of temperature are nearly as bad as those with little change, and would appear worse did not the days of rising temperature include many cases where unusually cool weather is followed by a rise to conditions which are almost ideal as to both temperature and humidity.

In the fall the figures are very systematic, but show a peculiar drop in the death rate at times when there is little change of temperature. This may be due to the fact that in the fall the days that are most nearly ideal as to both temperature and humidity are likely to occur during spells of fairly steady weather. Yet even so, the days with a marked change of more than 9° in either direction average only 0.150 deaths per day against 0.204 when the weather remains uniform.

The Margin of Safety Estimated

Table VII makes the advantage of variability so evident that it scarcely needs further comment. Yet it may be well to add together the days having a given degree of change without reference to whether the weather grows warmer or cooler. This is done in Table VIII. Here it appears that in winter the advantages due to a pronounced drop in temperature do not balance the accompanying dessication of the air. The difference between weather with great changes and that with few changes is slight, however, only 0.014.

During the rest of the year, however, the advantage of variability is great, for the days with a change of 9° or more have

0.098 less deaths than those having a change of less than 3°. To put the matter in another way, the average number of deaths per day from March to November is 0.305. If the conditions all the time could be like those which prevail when the temperature either rises or falls 9° or more, this death rate would be lowered by 19.7 per cent. Here, then, we have still another way in which a change in the air of our hospitals at the time of operations would theoretically produce an improvement of nearly 20 per cent.

In this connection there naturally arises the question whether variability of temperature near the time of death is as important as at the time of the operation. This is answered in Table IX which shows the number of deaths per day when the indicated changes of temperature occurred during the 24 hours preceding and following 8 a. m. of the day of death. In certain respects, the tendencies shown in this table are the opposite of those in Tables VII and VIII. Thus during the winter, especially in section B which shows the actual day of death, rising temperature seems to be harmful, a condition which harmonizes with what has been learned as to deaths from diseases in general.

During the rest of the year, on the other hand, an extreme drop seems generally to be bad. The other figures are indeterminate in Section A of Table IX, but are like those of Table VII in Section B; that is, uniformity is worse than a change. Apparently Section B of Table IX shows a much more genuine relationship than Section A, which is not surprising since B gives the conditions on the very day of death.

On that basis we may say that in winter changes of temperature several days after an operation have a directly opposite effect from changes at the time of operation,—which simply means that at the time of the operation humidity is the most vital factor, while at a later period variability assumes the more important rôle. From March to November, on the other

TABLE IX
DEATHS PER DAY SUCCEEDING OPERATIONS AT BOSTON CITY HOSPITAL, AND
OCCURRING AT TIMES WHEN THE INDICATED CHANGES OF TEMPERATURE TAKE
PLACE FROM 8 A. M. TO 8 A. M.

	Drop of 9° or more	Drop of 8°	Change of less than 3°	Rise of 4° to 8°	Rise of 9° or more
<i>A. Twenty-four hours preceding 8 a. m. of day of death.</i>					
Dec.-Feb.	0.396 (40-101)	0.231 (12-52)	0.327 (31-95)	0.397 (29-73)	0.333 (33-99)
Mar.-Nov.	0.349 (44-126)	0.261 (53-203)	0.319 (187-586)	0.368 (98-266)	0.358 (44-123)
<i>B. Twenty-four hours succeeding 8 a. m. of day of death.</i>					
Dec.-Feb.	0.277 (28-101)	0.307 (16-52)	0.347 (33-95)	0.383 (28-73)	0.404 (40-99)
Mar.-Nov.	0.428 (54-126)	0.266 (54-203)	0.331 (194-586)	0.309 (83-266)	0.301 (37-123)

hand, when extreme dryness like that of winter almost never prevails, variability is desirable at both times although a great drop of temperature may prove harmful. Such variability, however, has less effect at the time of death than at the time of the operation.

It is easy to secure such variability either by open window ventilation with glass reflectors at the bases of the windows to prevent drafts, or else by admitting cool air through ventilators whenever it is needed. This is as important and vital to the patient as the preparation of his diet. The greatest difficulty is likely to be to make nurses and hospital attendants feel the need of being as conscientious in this matter as in the matter of diet.

Another necessity is the avoidance of drafts by the use of screens or other devices, and the careful watching of patients to make sure that they run no risk of getting chilled. If all this were done, and if the suggestions of the first part of this paper were carried out, it seems fair to hope that an extremely powerful and effective agent would be added to the equipment of every hospital and every physician.

In the study of variability even more than of humidity wide cooperation is needed, and the author again asks for as many suggestions as possible.

Summary

With this we must leave the matter. The significant points are:

(1) Variability of temperature is as important as humidity, but its effects are obscured in winter when the extreme aridity of our winter houses is the dominating factor.

(2) Variations of temperature are more important at the time of an operation than at the time of death, although at both times they have a large significance.

(3) Constant attention to variability during the entire time from an operation to the day of discharge from the hospital or sick room would apparently diminish the death rate by at least 20 per cent, in addition to the gain to be derived from proper humidity.

THE LOOKING-GLASS SELF

The physical examinations conducted by way of demonstration before the International Conference of Women Physicians were made before a big triplane mirror. Mirrors have a reputation of being aids to vanity but, properly used, they may have an opposite effect. "Oh, those mirrors are very chastening," says Dr. Eleanor Bertine, Director of the Bureau of Education of the Association. The mirror is also an adjunct in the Health Center gymnasium. After being shown the proper corrective exer-

cises, a girl can see for herself whether she does them correctly. A series of exercises instituted at the Health Center for the correction of minor disturbances of physical health, which really menace both health and efficiency, will be described and illustrated in an early issue of MODERN MEDICINE.

As in other problems of social adjustment, correction is largely a change of attitude. The object of the Bureau of Social Health is to establish certain health standards to show how they may be attained and so to present them as to make them the object of sincere and persistent effort.

RECONSTRUCTION IN FOREIGN COUNTRIES

One method of aiding in reconstruction in Australia is the reservation annually of ten places in two educational institutions for the children of fallen and disabled soldiers, according to *Readjustment and Reconstruction Information*, of the Reconstruction Research Division of the United States Council of National Defense.

The dismissal of disabled employees from factories has been forbidden by the German war office unless other positions have been provided for them. In the United Kingdom any increased charge incurred for compensation for disabled men is to be borne by the State, on the theory that disabled men are more liable to meet with accident in the course of employment, or the results of an accident to be more serious than they would be normally. Under this scheme, the Government enters into an arrangement with the insurance companies whereby the usual rates for a particular occupation are charged which are not increased as the result of the employment of disabled men. The Government, under certain conditions, is to reimburse the loss which the companies may incur.

Contributions to the Ludendorff fund are being solicited in Germany, the money to be used to relieve cases in which the law, on account of its rigidity, could not make sufficient provision. Many sick and internally injured soldiers were discharged without pensions, and are dependents.

The Japanese Government will devote more than \$20,000,000 for higher education within the next six years. More than \$2,000,000 of this will be appropriated to dispatching and maintaining students abroad.

A research board has been appointed by the Department of Scientific and Industrial Research of the United Kingdom and the Medical Research Committee jointly to investigate the hours of labor and other conditions of employment the survey to include methods of work and the production of fatigue, both to be considered as related to industrial efficiency and the preservation of health.

The City of Toronto has appointed a permanent housing commission which will see to the incorporation of a company, the latter to build about 300 houses in various parts of the city which will be for sale at a cost of about \$3,000. This is being done on the theory that the man who buys is more valuable than the man who rents.

The chief of the health service has put before the French Chamber of Deputies a proposed law for the treatment and care of tuberculosis. In support of the measure he stated that France has cared for 55,000 tuberculous soldiers during the war and that there are now at least 500,000 cases in France. These figures are serious in a country which, even before the war, was beset by the problem of depopulation.

The proposed law provides for dispensaries and hospital care whenever necessary, and for pensions to families when the wage worker is in a hospital. The estimated cost is 84,000,000 francs as an initial expenditure, with an additional 100,000,000 francs annually.



R. C. RICHARDS, President, National Safety Council.



C. W. PRICE, General Manager, National Safety Council.



Photos by F. P. Burke.
SIDNEY J. WILLIAMS, Secretary and Chief Engineer, National Safety Council.

THE NATIONAL SAFETY COUNCIL

Through the courtesy of the National Safety Council MODERN MEDICINE is enabled to present in this issue a group of selected papers on medical subjects which were read before the Eighth Annual Congress of the Council, held October 1 to 4, at Cleveland, Ohio.

Below is a statement of what the Council is and what it does.

What the National Safety Council Is

The National Safety Council with headquarters at 168 North Michigan Avenue, Chicago, is now the leading organization in the United States for the prevention of accidents in the industries, the streets, and the homes. Organized in 1913 with forty members, it now has a membership of over 3,700 factories, railroads, insurance companies, technical schools, governmental agencies, etc., employing an aggregate of more than 6,000,000 workers. Its income is derived solely from membership dues. It does its work without asking for profits. It is cooperative, non-political, non-commercial. Practically all the industrial concerns, railroads, and other public utilities, both large and small, which have obtained the best results in accident prevention are members of the National Safety Council.

What the National Safety Council Does

(1) Maintains a bulletin service. Three posters suitable for posting on bulletin boards where the messages of care and caution may come directly under the notice of the workmen are issued each week. One bulletin is issued each week for the executives, bringing to their attention the latest and best plans, methods, and ideas for getting the best results from safety work and from other industrial relations activities.

(2) Maintains an information bureau for answering inquiries on all phases of safety work, sanitation, industrial hygiene, and other branches of industrial relations. The Council also maintains a complete and comprehensive library on safety which is available to its members.

(3) Publishes "Safe Practices Pamphlets" monthly. These engineering studies of industrial hazards are written in plain, everyday English so that they can be understood by every foreman.

(4) Lends safety motion picture films and stereopticon slides for use at workmen's safety meetings and other occasions.

(5) Provides phonographic safety talks, prepared by well known safety men, for use in lunch rooms and at meetings of foremen, safety committees, workmen, and others.

(6) Maintains an employment and registration bureau for safety engineers.

(7) Conducts a speakers' bureau and gives training courses for safety supervisors. Also cooperates with technical colleges and universities in presenting safety as part of a course in engineering.

(8) Aids in the organization of state and local councils in various parts of the country. At the present time there are thirty-five such state or local councils.

(9) Prints a weekly news letter to keep members informed on current events and important matters affecting the safety movement.

(10) Conducts the Annual Safety Congress in some large industrial center where papers and discussions on all branches of accident prevention work are given by experts of national and international reputation and where comprehensive exhibits on safety and other questions relating to industrial relations are shown. The Congress at St. Louis in 1918 was attended by over seventeen hundred persons. The proceedings of the Congress are printed and sent to members. They contain twelve hundred pages of information which is invaluable to the person who wants to study safety.

The Safety Council's Executives

Ralph C. Richards was unanimously elected president of the National Safety Council at the Eighth Annual Safety Congress, Cleveland, O., which was held October 1 to 4. He was one of the organizers of the Council and was a pioneer in the field of railroad safety.

Mr. Richards is chairman of the Central Safety Committee, of the Chicago & Northwestern Railroad, and for more than thirty years has been at the head of its claim department.

During the first five years of the Council's existence, he was a member of the executive committee, vice-president, and, later, an honorary member of that body.

C. W. Price, general manager of the Council, is a man who has had a wide experience in all lines of safety work. In 1911 he was put in charge of the promotion of safety work of the Industrial Commission of Wisconsin, and the

code of safety laws drafted during his tenure has become the standard for many other states.

He helped organize the National Safety Council, and has since been a member of the executive committee, vice-president, and field secretary. In 1917 he was assigned the task of making a survey for the government of all the navy yards and arsenals in the country with a view to placing them on a safe basis.

Sidney J. Williams is secretary and chief engineer of the Safety Council. He is a man with practical engineering experience, a broad knowledge of the mechanical and human problems of industrial relations, and what may be termed a safety soul.

Prior to 1918, when he came to the Safety Council, Mr. Williams, who is a graduate of the University of Wisconsin, was, in turn, superintendent and general engineer of a contracting company, and engineer to the Industrial Commission of Wisconsin. In the latter capacity he was of great assistance to the Government in the development of a plan for the elimination of duplicate inspection in public buildings. He also helped organize and, later, became secretary of the Building Officials' Conference, a national organization. In addition he organized an Industrial Service Conference for Wisconsin employers which still operates under the Wisconsin Commission.

The crotchety surgeon entered the ward at meal time and found only a probationer on duty. In a great hurry to adjust a dressing but unable to find any instruments, he yelled at the only one present that looked like a nurse, "Where's the probe? Fetch me a probe!" The poor little probationer, anxious to please, answered, "Won't I do sir?"

HYDRAULIC PRESSED STEEL COMPANY ORGANIZES BENEFIT ASSOCIATION

The accompanying photograph shows a group of representatives of the four plants of the Hydraulic Pressed Steel Company at Cleveland, who met recently with officers of the company to form a constitution for the new Mutual Benefit Association of the company. Ten representatives came from each plant and, after a day of deliberation, adopted a constitution involving several distinctive features.

While providing liberally for cash awards in case of sickness, the Association is authorized to do many things for the health and well-being of the members. In fact, unlimited scope is given to develop medical and health service cooperative enterprises, such as stores and home building. One of the unique features of the plan is the coordination of four separate plants into one unit—a sort of federal government of four separate units. Each unit looks after its own affairs, but the money is paid into a central fund and is handled by one general secretary. A central re-insurance fund made up of assessments upon the four units forms the protection against abnormal drains upon the funds of any one unit. The central fund is intended to cover epidemics and long-time cases.

The Hydraulic Pressed Steel Company, which has become famous as "more than a place to work," was largely instrumental in initiating the Benefit Association, and contributes one-half the entire cost besides maintaining first aid and nursing service in plant dispensaries. It is the expectation of the company and of the Association that more extensive medical and health service will be immediately developed.



Gathering of delegates from four plants of the Hydraulic Pressed Steel Company at which a new employees' mutual benefit association was formed. The Association expects to develop a thorough and more effective medical service and health program.

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

WHAT THE NATIONAL INDUSTRIAL CONFERENCE OVERLOOKED

No responsible citizen of the republic can escape an interest in the deliberations of the National Industrial Conference, appointed by President Wilson, which began its session on October 6 and expired on Friday, October 24. The Conference refused to take any action toward mediation in the steel strike. The representatives of labor and capital were equally unsuccessful in agreeing upon a platform regarding the application of the principle of collective bargaining. It is unfortunate that the Conference adjourned without having set forward at least some principles which would reduce the destructive warfare that is constantly going on between labor and capital.

In evaluating the results of the Conference, it is interesting to consider the personnel of the Committee. Organized labor was given thirteen representatives, with four additional representatives from the Railroad Brotherhood, making seventeen in all; the United States Chamber of Commerce, and the National Industrial Conference Board were each given five representatives; while the farmers' organization and the bankers' association were allowed three and two members, respectively. One would gather from the above that the organized portions of society had their interests fairly well protected in this Conference. Can we say as much for the interests of the public, which all too frequently finds itself squeezed by the pressure which any two contending forces wish to exert on each other?

It is interesting, therefore, to note who of the fifty-seven varieties of statesmen, appointed to the National Industrial Conference, are represented in the twenty-five individuals chosen to appear in behalf of the public. The official record, "Who's Who in America," reveals the fact that the public was here represented by one broker; two bankers; two socialists, one a writer and the other once an aspirant for public

office in New York; one president of a farm bureau federation; a cotton manufacturer; a clothing manufacturer; three directors of large corporations; one attorney for railroads; one paper bag manufacturer; one wagon manufacturer; one editor of a farm paper; one designated as a lawyer and politician; another known as "potato king"; one Titus, indicated as oil operator and lobbyist; one woman publicist; two women social workers; along with John D. Rockefeller, Elbert H. Gary, of the Steel Corporation, and Dr. Charles W. Eliot, president of Harvard College.

To the readers of MODERN MEDICINE it will probably occur as a bit curious that the one hundred fifty odd thousands of physicians of the country, who have the entire obligation of caring for the health of the people of this nation, should not have been represented in the Conference. Such representation on the Committee, it would appear, might have been of some value, for surely no one knows the intimate living and thinking of the people any more closely than does the physician; strange, therefore, that the physician should not be called into council in the disposition of their individual or group lives.

The one issue that was not controversial in this conference is that of decent living and working conditions. Herein are bound up problems of shop sanitation, the question of working conditions, prevention of occupational disease and accidents, medical supervision with physical examination, to say nothing of the living conditions, housing, and community health programs. These are factors to which the physician of scientific training and social viewpoint might have given invaluable suggestion; and yet his was, of all the professions, distinctly counted out. Who better than he has knowledge of the sanitary standards of plants, the effect of monotony, the subject of fatigue? Who better than he can prescribe adequate ventilation, pure drinking water, adequate toilet and locker facilities? Who should be better informed as to the vitiating effect of dust, fumes, gases, poisons, over-crowding, with

their resultant low output? Who can better diagnose the case of "soreness" on the part of the laborer, whether it is induced by fatigue or whether the "soreness" or dissatisfied state of mind is a forerunner of the fatigue?

These are definite problems which must be weighed in carefully in the final determination by the public as to whether organized industry or organized labor is to have its way in any particular case at issue. Take for example, the coal strike which was precipitated November 1. Here the ultimatum of organized labor is for a six hour day, a five day week, and a 60 per cent increase of pay. They have broken their contract which does not expire until next April. This is but another example of the vicious, ever widening circle of higher costs. The proposed thirty-hour week means a tremendously lowered production, and all this in the face of a shortage of coal even under present working conditions.

It would seem that the public should have something to say as to the cost of coal. It might demand definite information as to whether there is any physical condition surrounding the miner's job which demands only thirty hours of work per week. Here again it is quite possible that the physician, representing the public, might determine what conditions are fair working conditions for the man who is mining our coal.

Similarly the public is concerned and should see to it that the housing, recreational, and educational facilities afforded the miners and their families meet the requirements of modern life and which make for the best type of citizenship.

It is not without reason that the medical profession might properly give testimony as to hours and working conditions in many other labor disputes, where frequently the appeal of the public is entirely based upon bad working conditions, fatigue, and long hours.

EDITOR.

MERCURIAL POISONING

By R. P. ALBAUGH, M.D., CLEVELAND, OHIO, FORMERLY DIRECTOR, DIVISION OF INDUSTRIAL HYGIENE, OHIO STATE DEPARTMENT OF HEALTH

MERCURIAL poisoning occurs frequently in certain trades, particularly in the preparation of mercurial salts and in the felt hat industry. The disease usually assumes a chronic form and is caused by the frequent inhalation of small quantities of vapor. It is said, also, that inhalation of dust containing mercury will produce the disease.

Although mercury boils at 360° C., it volatilizes at room temperature. It is for this reason that it is important as a source of industrial poisoning. Many compounds of mercury, particularly the oxids, are used industrially and cause mercurial poisoning.

Symptoms.—The symptoms of industrial mercurial poisoning are not unlike the symptoms of mercurialism from therapeutically administered mercury. There is usually a marked increase in the flow of saliva, with foul breath and a metallic taste in the mouth. There may be a simple inflammatory condition of the gums, or it may go on to ulceration with loosening of the teeth. The more important symptoms, however, are the psychoses and nervous afflictions, which are usually accompanied by digestive derangements and loss of strength. Patients frequently exhibit a marked tremor before other symptoms manifest themselves. It is not unusual after long continued exposure or repeated attacks of poisoning

for the patient to become emaciated with anemia, loss of strength, muscular atrophy, and disturbed digestion. Such cases may result fatally. Slight cases of mercurialism usually recover, however, if the patient is removed from the influence of the poison.

Prevention and Treatment.—Prevention of mercurial poisoning depends upon the confinement or removal of mercurial vapor and mercury dust as well as strict personal hygiene, particularly proper care of the mouth. In the hatters and furriers trades the danger arises chiefly in cutting, dressing, drying, sorting, and in the subsequent stages of felt hat manufacture. The prohibition of entry into drying rooms while drying is going on, and the removal of vapors and dust at the points of origin are important. The treatment of mercurial poisoning is symptomatic. Patients should be removed from exposure with the first symptoms. Potassium chlorate mouth wash may be used for the inflammatory condition of the mucous membrane. Effort should be made to promote the general condition by strengthening food. Baths and electricity should be resorted to for the nervous symptoms.

"Industry has been in danger of losing sight of the person. Now we get back to people—to men and women whose passions energize the structure of industry."—Ordway Tead in "Instincts in Industry."

WHAT THE WAR HAS TAUGHT US IN SURGERY

BY GEORGE W. CRILE, M.D., CLEVELAND, O.*

THE great contribution of the war to surgery was not the production of hitherto unrecognized methods of treatment, but rather the accumulation of masses of evidence regarding the comparative value of various methods. There is no fundamental distinction between the war patient and the civilian patient. The soldier coming for treatment is in a greater or less degree of exhaustion from the conditions of his environment; the civilian patient is in a greater or less degree of exhaustion from the condition from which he seeks relief. Further exhaustion from the trauma of the operation, hemorrhage, and infection are the prime dangers in each case.

In the army the outstanding requirement is to return every possible man to active service in the shortest possible period of time consistent with a permanent cure. Efficiency in civilian surgery should demand the same. It is to this end that the lessons learned in the field are being studied anew in their relation to the civilian patient.

Immediate Comparison of Data

In the service in the field many lessons were learned. Every theory was tested in the crucible of practical application on a vast scale. We were dealing with hundreds of thousands of patients as we deal with hundreds here. Surgery lived years in days. The combined experience of thousands of surgeons was immediately available for comparison and for study by the individual surgeon; by the surgical staffs of hospitals; by the consultants; by the Red Cross Research Society; by the Interallied Conference; all of whom were seeking to discard the false, to find and to hold fast to the true. All questions pertaining to the care of the sick or wounded soldier were thus studied in detail and in the mass by the nations at war; and, finally, in Paris at a conference of those chosen by their respective governments to make up a consensus of opinion, con-

THE METHOD IS THE MAN

The factors that make for safe surgery are the same in civilian practice as for the man wounded in war.

Theories and counter theories found a practical application on a vast scale during the war. The combined experience of thousands of persons became immediately available for comparison and study, and the results passed upon for standards of practice by those most competent to judge, and the conclusion is:

Good surgery advocates no one method, but depends for its success first, last, and always upon the trained judgment of a competent man.

he will recover if these three menaces can be obviated or successfully treated.

The Menace of Infection

The mere fact that man is surrounded, covered, and penetrated by an infinite number of bacteria, and lives, is a proof that the human body has within itself adequate defense against bacteria. This defense we may be sure has been attained through struggle and survival, that is, through biologic adaptation, and is the bulwark of the treatment of infection. An interesting proof of this biologic adaptation is the fact that the various parts of the body have varying powers of defense against infection, the most efficient defense in general being possessed by those parts most exposed to infection from injury, such as the external soft parts of those which lies in infected areas, such as the intestines.

On the other hand, the inner protected parts, such as bone, especially deeply placed bone, the deep muscles and encased organs and tissues, such as the heart, the brain, the spinal cord, and the retroperitoneal tissue, have had less opportunity to make a selective struggle; hence in these parts weaker defenses against infection have been evolved. What does the tissue of the foot possess that is not possessed by the mediastinum, or by the femur? What does the peritoneum possess that is not possessed by the dura? What endows the skin and the peritoneum with a better de-

clusions from this great mass of evidence were scrupulously drawn.

One fact stands pre-eminent among the many elicited by this vast experience; that is, the prime problems of war surgery as of civilian surgery are shock, anemia resulting from hemorrhage, and infection. Whatever the lesion of the patient, whether it result from war missiles or from disease, provided the lesions are anatomically operable,

fense against infection? The part whose defense is weakest usually possesses a limited blood supply, as compared with parts whose defense is stronger.

The Natural Defenses

There is apparently no other difference as striking, nor as marked as the difference in blood supply. We may then infer that a rich blood supply is the key to the defense against infection. The face and scalp, the external parts of the body, the abdomen, have a rich blood supply as compared with the deep lumbar muscles, the bones, the spinal cord, and the retroperitoneal tissue. Not only is the normal blood supply less in these poorly defended regions, but the local vasomotor mechanism is less developed; hence there is less reaction to the invading bacteria. For the most efficient defense there must be not only abundant blood, but normal blood. As Sir Almroth Wright has shown, the blood must not be acidosed, as when blood pressure is low, for saprophytes flourish in such a medium. The bones, the deep tissue planes, the mediastinum, the spinal cord, the brain, and the retroperitoneal space, are all hazardous regions for infection.

In the mind of the surgeon the body should be charted like the sea, and he should direct his course according to this chart. One region requires one plan of action; another, such as the scalp or the face, no special plan. Face wounds heal almost equally well with good surgery, with poor surgery, or with no surgery. The infected mediastinum heals almost equally badly with no surgery, with poor surgery, or with good surgery. A pulseless patient becomes a universal mediastinum. A limb, anemic, as from a neglected tourniquet or from the severing of the arterial supply, becomes as helpless as the meninges. The war patient in exhaustion from cold and wet and exposure, from loss of sleep and from fighting, and the starved civilian with cancer of the stomach or with perforating ulcers, alike have a universally weak defense. Patients prostrated by shock or by hemorrhage have low resistance. As a rule, defeated, dejected troops have less resistance than victorious troops. The defense, then, in the normal soldier varies with the several parts of the body, the frontiers of the organism being best defended. The defense, even at the frontiers of the organism, is lowered by interference with the local blood supply, whether of an entire limb, or of the devitalized bloodless tissue along the injured track of the missile; it is weakened by low blood pressure from shock, with its secondary anidrosis; or by hemorrhage. It is weakened when the entire individual is in exhaustion. The de-

fense, in turn, is augmented by rest, by sleep, by fluids, by the revision of wounds, by restoration of the local and general blood supply.

Aids to Local Resistance

In addition to these measures which augment the resistance of the organism as a whole, it is essential to increase the local resistance as well. Whether we are dealing with a war or a surgical wound, this may be secured by vitalization of the part attacked; by physiologic rest; by destruction of contaminating bacteria; by the application of heat.

The vitalization of war wounds is accomplished by the excision of every particle of devitalized soft tissue and bone; by removing every particle of foreign material,—clothing, mud, missiles,—in such a manner that there is no added *surgical* devitalization from goading retractors or rough handling of fractures. Vitalization is promoted also by making sure there is no interference with the blood supply and by employing a minimum of foreign material for treatment, such as tubes, etc.

The wound may be further vitalized by moist or by radiant heat. The vitality may be maintained by overcoming infection; by preventing pooling of wound secretions. Therefore, in recessed wounds the Carrel-Dakin treatment does best. The deeper and the more recessed the wound, the greater the indication for Carrel-Dakin. It is always to be borne in mind that the operation must be done lightly and sharply; for if there be rough handling, needless moving of compound fractures; if piercing hooked retractors tear the flesh; and if intermittent muscular contractions grind tissues between the ends of ragged bone fragments, then the net result of the operation is the substitution of surgically devitalized tissue for the devitalized tissues of battle casualty.

Essentials of Physiologic Rest

Physiologic rest includes more than mere muscular and psychic rest; it implies equally *cellular rest*. Living cells are disturbed by air, by desiccation, by physical contact of dressings, by many chemical antiseptics, and by bacterial toxins. These points have been strongly emphasized by Sir Almroth Wright whose teaching has placed a renewed emphasis on the importance of the *cellular* protection of wounds to ensure cellular physiologic rest.

To secure physiologic rest in the case of a fracture an even, adequate, continuous extension must be made, an extension sufficient to prevent the goading of soft tissues by sharp bones and to prevent body fragments from grinding one another. Physiologic rest of the soft parts indicates

mass quiet by means of supports, such as splints, slings, swings, and extension suspension. It means for compound fractures and for injuries of the soft parts no tight bandages, no tight stitches, no accumulation of wound secretions,—blood, serum, etc. For open wounds it means that antiseptics must not be damaging; that dressings must be painless; it means elevation of extremities for comfort, and the prevention of swelling. For visceral injuries it means absolute rest, low diet, freedom from excitation, associated environment.

Destruction of Contaminating Bacteria

The first and most dependable agency for the destruction of contaminating bacteria is the bactericidal power of tissues. This normal defense of tissue against bacteria is present only in living tissues, and the ability of living tissue to overcome infection depends on its vitality. Normal living tissue has strong bactericidal power. As vitality is impaired down to the death point, so is the bactericidal power impaired to the zero point. Moreover, when infection begins, the infecting agent itself has the power of diminishing the vitality in advance of the infection through chemical injury, tension, and swelling.

Thus, as Kenneth Taylor, Cuthbert Wallace, Bashford, and others have shown, many anaerobes cannot live at all in normal tissue, but only in damaged tissue. The anaerobic invasion is made possible only by injury through chemical action, through shell injury, through swelling or anemia, or shock and exhaustion, whereby the resistance of the tissue is lowered. Therefore in a compound fracture that is settling down, one goading by a sharp fragment of bone will devitalize a small area and, in consequence, an area of infection with the advancing tissue damage will be established. Therefore, we may say that the whole wound is defensively only as strong as its weakest point; if the defense line is broken at one point, the entire line of defense may give way.

Methods of Antisepsis

As for the relative value of the various methods of antisepsis it is difficult to choose among them. Perhaps the method which has proved most universally useful, excepting under battle conditions, is the Carrel-Dakin. This is of value in wounds with necrotic tissue, in empyema, in recessed wounds with a tendency to pooling of the wound discharge, and as a general method. Carrel and Dakin have made an outstanding contribution to surgery. Dichloramin-T, flavine, bip, or Wright's hypertonic solution, each has its

value under certain conditions. Perhaps most useful of all in civilian surgery after Carrel-Dakin is flavine, which is non-toxic and can be used for days without ill effect. It is of special value in multiple stage operations in which it is necessary to keep the wound *in statu quo* for a limited period, as in certain cases of exophthalmic goiter. It should be noted that it is not used in contact with silk sutures as it dissolves them.

The therapeutic value of heat has been sanctioned by the experience of physicians and of the laity since the dawn of medical history. The therapeutic place of no other agency is as secure. Moist heat, dry heat, radiant heat, electric light, sunlight—all favorably influence the infections.

In what way may heat exert its beneficent influence? Granting the premise that the natural defense of the organism against infection is made through the agency of phagocytosis and the chemical antagonism of the blood plasma, it becomes evident that in either case the defense is chemical. The fact that the defense is chemical gives at once a clue to the mechanism by which heat assists the defense against bacteria. It is probably because with the rise of each degree in temperature in any system, inorganic or biologic, the chemical activity is increased 10 per cent and the electric conductance 21 $\frac{1}{2}$ per cent. The increased chemical activity increases the chemical defense; the increased electric conductance increases the metabolism. Therefore, we may suppose that heat accelerates the chemical defense as far as it involves the metabolism of the phagocyte, and as far as it involves chemical defense of the blood plasma, and that heat aids also by increasing the total amount of blood in the inflamed part, thereby increasing the number of phagocytes. Moreover heat assuages pain.

An Interesting Analogy

In this discussion of infection an interesting analogy between appendicitis and the war wound suggests itself. In a case of acute appendicitis, if the dead appendix is removed before the infection has invaded normal tissue, then the wound is closed immediately, primary union follows and the vast possibilities of the inflammation of the great abdominal cavity will be averted. Likewise, if the dead tissue in the track of a war wound is excised, before living tissues are invaded, the inflammation of a great mass of soft tissue will be averted. In appendicitis, even after the infection has penetrated the wall of the appendix and invaded the peritoneum, excision of the dead appendix will facilitate recovery. In war wounds, even after the infection has passed

beyond the devitalized tissue, excision of the devitalized tissue will facilitate recovery.

When an appendicitis has developed into a localized abscess with an organized wall of granulations, the surgeon deals with the abscess as such. When the infection in a war wound has developed into an abscess with new tissue organization, no débridement is done, but the abscess is treated as such.

In the war wound the stage of contamination of dead tissue, the period before infection develops, corresponds to the period before infection from a dead appendix penetrates the wall. In this period if the dead appendix is excised cleanly, the patient recovers; if the dead tissue of the war wound is excised cleanly the patient recovers. Appendicitis and war wound infection develop through identical phases: localized infection, spreading infection, abscess. If an appendix abscess is roughly handled, spreading peritonitis, pyelephlebitis, bacteremia, etc., may result. Comparable results follow when an infected war wound is roughly handled.

Appendicitis was not mastered until the surgeon had learned accurately to forecast its future, in other words, until he took the initiative away from the disease and attacked instead of defended. In like manner in the case of the war wound the military surgeon discovered that as long as he left the initiative to the infection, he could not achieve mastery. To wait in the case of a devitalized war wound until the infection had spread widely until there were pain, swelling, redness, and tenderness, was to court defeat. Like the to-morrow of the appendix, the to-morrow of the war wound must be read today, and action taken today.

An antiseptic does not cure appendicitis—it does not cure the war wound. There is no difference in principle or in practice between the treatment of appendicitis and the treatment of war wounds. The time factor is equally vital; the treatment is comparable; the natural defense is identical.

Shock and Hemorrhage

The consensus of opinion of the Interallied Surgical Congress and the British and American surgeons in military service generally may be summed up in the following brief dictum: *The best treatment of hemorrhage and shock is rest, warmth, morphin for pain, fluids, and blood transfusion.* Civilian surgery and war surgery in their relation to shock present one important difference. The depleted civilian patient may be in a "pure-shock" state when he comes under the surgeon's care; the wounded soldier is often in

shock. Nevertheless, identical methods will prevent the development of shock in the first case and will successfully combat the present shock in the latter.

Physiologic Rest.—Physiologic rest includes psychic, as well as physical rest. It means reassurance; it presupposes an atmosphere of quiet and confidence; it requires optimism as well as skill. Physiologic rest can be achieved only by the cooperation of surgeon and intern, nurse and orderly.

Warmth.—The loss of power to create body heat is one of the damaging effects of shock, for the organism is much injured by a subnormal temperature. The application of heat, therefore, is one of the essentials of the treatment and of the prevention of shock. The most readily applied form of heat is hot air under blankets. Under war conditions hot water bottles and other forms of direct heat are not useful because of the time required for application and because of the danger of producing burns.

Morphin.—If the patient has pain, if he is restless and, if the pain and restlessness cannot be otherwise relieved, morphin in one-sixth grain doses may be given until the pain and restlessness is overcome. There is evidence that morphin in still larger doses is specifically useful.

Oxygen.—If there is a wound of the chest which interferes with the supply of oxygen, oxygen is to be given. If available, all cyanosed, all gray-blue patients, all shallow breathing patients should have oxygen. A nitrous oxid machine for giving anesthetics is an excellent means of administering oxygen under pressure.

Administration of Fluids.—Water in some form should be given, preferably by the mucous membranes. Sodium bicarbonate in a 5 per cent solution and combined with 5 per cent glucose is most effective; but in acute, grave cases from 2,000 to 4,000 cc. of fluid should be given each twenty-four hours. Water intravenously is rapidly eliminated from the body. Water absorbed through membranes or tissues is retained in much larger amounts. Water, to be most useful, should have a biologic pass.

The Dangers of Low Blood Pressure

The damaging effect of low blood pressure is prevented or overcome (1) by elevating the foot of the bed; and (2) by early transfusion. The Bayliss solution of gum acacia may be used. It has the advantage of being more readily available than blood. Under war conditions donors for blood transfusion are usually numerous among the lightly wounded patients.

One of the greatest errors is to allow a patient

to remain in a state of low blood pressure in the hope that he will improve through his own resources, reserving a blood transfusion to be used as a last resort after it has become obvious that the patient is going to die. This is the same faulty logic that was once used in dealing with appendicitis. When the indication for operation in appendicitis was supposed to be a clammy, pulseless state, when the patient was dying, surgical treatment became almost discredited. It is equally illogical to wait for impending dissolution in shock before improving the circulation. Treatment should not be deferred until the inaugural state of death is established.

There is another method of treating shock which is not generally applicable to war conditions, that is narcotization with morphin, giving morphin on the same scale as in the Alonzo Clark treatment of peritonitis, *i. e.*, keeping the patient under morphin so completely that the respirations are cut down to about twelve to fifteen per minute and the patient is deeply asleep. During this time between 2,000 to 3,000 cc. of normal saline infusion should be given subcutaneously. When properly carried out, excellent results may be obtained by this method; however, it should never be employed if there is cyanosis, and never routinely, and never except under expert supervision.

Modus Operandi

The interallied Surgical Conference adopted as one of its conclusions that in the treatment of wounded soldiers *the anesthetic of choice is nitrous oxid-oxygen combined with local anesthesia*. Among the evidence offered in support of this tenet Surgeon General Sir Anthony Bowby presented the work of one of the most brilliant British military surgeons, Capt. Douglas C. Taylor, and the work of the Chief of the Anesthetic Service of the British Army, Capt. Gregory Marshall. The experience of Capt. Taylor I am privileged to quote as follows:

Until the summer of 1917 my colleague, Capt. G. Marshall, invariably gave ether for my laparotomies for gunshot wounds of the abdomen. No series of 100 consecutive cases showed a recovery rate of much over 50 per cent.

During the summer and autumn of 1917 I did 101 laparotomies for abdominal wounds, and nearly half of them were given nitrous oxid and oxygen, combined with infiltration of the abdominal wall with eucain and novocain. The more serious cases, *i. e.*, those with rapid pulse and low blood pressure, were nearly all done by this method.

Of this series, 27 died at the Casualty Clearing Station, and 74 were evacuated to the Base; of the latter there have been only two deaths, both from secondary hemorrhage, one from the kidney and the other from the rectum and buttock.

By the employment of anociation, the mortality rate in Captain Taylor's series was reduced from approximately 50 per cent to 29 per cent.

Captain Marshall has demonstrated that patients may apparently do well during ether anesthesia but do badly afterward, while they do well both during and after nitrous oxid-oxygen anesthesia.

The experience on a large scale of the resuscitation teams from the Lakeside Unit which served continuously throughout Field Marshall Haig's great offensive in Flanders in 1917, during which there were over 800,000 casualties, showed that in abdominal operations somewhat better results were obtained if before the beginning of the operation sufficient blood were transfused to permit a safe performance of the operation; and again at the completion of the operation an ample amount of blood up to 750 cc. were given. Furthermore, if a let-down appeared later, the transfusion might be repeated. Meanwhile, the advantages of comfort, rest, warmth, morphin, and fluids were added.

The advantages of nerve-blocking are further emphasized by Colonel Cabot's series of 180 amputations of the thigh, one-half under ether, one-half under spinal anesthesia with a reduction of mortality by the use of spinal anesthesia of 50 per cent; while Captain Taylor by the use of nitrous oxid-oxygen and local anesthesia reduced his mortality rate from thigh amputations more than 200 per cent.

It would seem from these conclusions of the Interallied Surgical Conference regarding that the technic which would deal most successfully with infection, shock, and hemorrhage in exhausted soldiers in whom bullets or shell fragments had ploughed their way through septic material into the hollow viscera should provide even greater protection to the civilian patient in whom avenues into the viscera are opened under the utmost aseptic precautions. It is for this reason that perhaps among the most vital lessons brought back to civilian practice have been those learned from the treatment of abdominal wounds.

Treatment of Abdominal Lesions

In civilian surgery the principal sources of infection are the appendix, the gall-bladder, the tubes, perforating ulcers, or an infection incident to the operation itself. In military surgery the source of infection may be clothing, missiles, or the contents of the hollow viscera, especially the last.

In our military experience near the front line and at a base hospital we found that the defense against infection in the soldier in many instances

was greater than that in the average patient. The general resistance, the vitality of the soldier had been increased by his training, the open air life, wholesome diet, regular hours, and physical exercise; and the muscles of the intestinal walls, like the muscles of the legs, had become larger and stronger. If the perforated hollow viscera had been closed, fresh soldiers, whose splendid general condition had not been greatly impaired at the time they were injured, rarely died of peritonitis. In the heavy winter campaigns death was due to bronchopneumonia, shock, exhaustion, etc., rather more commonly than to peritonitis. On the other hand, soldiers wounded after a protracted and exhausting season at the front, especially if cold and wet as was almost universally the case during the winter months, with their general resistance lowered by bodily fatigue and mental stress, such cases bore operations for penetrating abdominal wounds badly. The acute reduction of vitality in these fatigued soldiers is comparable to the lowered vitality of civilian patients reduced by chronic disease such, for example, as cancer of the stomach.

The prime problem of abdominal surgery, then, is the problem of the patient with lowered vitality, reduced resistance, be that patient a wounded soldier or a diseased civilian. It follows logically that the first measure is to increase the general resistance. If immediate operation is not imperative, the vitality of the patient may be increased by the obvious measures of diet, fresh air, and, above all, rest and sleep, until a favorable condition for operation is attained.

In the soldier with perforated intestines, however, and in the starved civilian patient with partial obstruction, or with acute infection, operative measures cannot be postponed. In these cases the administration *per rectum* of a 5 per cent solution of soda bicarbonate with 5 per cent glucose and an immediate transfusion of blood may effect a sufficient restoration for the operation or at least for the first séance of a two-stage operation under strict asepsis, nitrous oxid-oxygen analgesia, local anesthesia, and the minimum amount of manipulation required to complete the operation; or, in grave situations, to make a sufficient anatomic adjustment to save the patient until an interim of rest and restoration has sufficiently increased his vitality to permit the performance of the second and major stage of the operation.

Points in Operative Technic

As for the technic of the operation, whether it be performed in one or two stages, whether it be the removal of an appendix or gall-bladder, re-

section of the stomach or colon, removal or tumors of the ovaries or uterus, or—in the wounded soldier—the repair of intestinal rents or perforations, every step should be under complete asepsis with nitrous oxid-oxygen anesthesia or analgesia, supplemented by ether only when it is necessary to secure increased relaxation during the exploration, novocain infiltration, gentle manipulations, and sharp dissection.

The essential points in the associated treatment of abdominal infection, therefore, are the following: (1) nitrous oxid-oxygen; (2) anesthetized incision; (3) accurate, clean cut operation to diminish both infection and shock; (4) adequate drainage; (5) Fowler's position; (6) vast hot packs over the entire abdomen, spreading well down over the sides; (7) 5 per cent sodium bicarbonate with 5 per cent glucose by rectal tap, continued as long as it is tolerated; (8) primary lavage of the stomach, repeated only if indicated; (it will rarely be indicated if asepsis is complete); (9) from 2,500 to 3,000 cc. of normal saline subcutaneously every twenty-four hours until the period of danger is past; (10) morphine hypodermically until the respiratory rate is reduced to from 10 to 14 per minute and held to this rate until danger is past.

Under this combination of the asepsis of peritonitis with the associated operation my associate, Dr. W. E. Lower, and I have performed 409 consecutive operations for acute appendicitis, with or without generalized peritonitis, without a death.

The Good Surgeon

The surgeons and the pathologists who for four years have intensively studied war wounds, have formulated many theories of treatment, many apparently contradictory theories. Thus there have been presented the claims of the value of various chemical agents against those of no chemical agent; of moist dressings against dry; of heat against cold; of frequent dressings against infrequent, and of no dressings against both; of sunlight and of electric light against occlusion; of immersion against hot air; of bacteriological control against clinical judgment; of vaccines, toxins, and foreign proteins against normal reaction; of wound inoculation with harmless organisms against wound sterilization; of isotonic against hypertonic solutions; paste has competed with paste; bip with bip; sap with both; and chronic pastes with all.

Does not this intensive study of infection in war wounds for this comparatively short period equal and recapitulate the more leisurely study of infection during the thirty years since Lister

first proposed the carbolic spray? And is there not slowly emerging from the present conflict of opinions the same fact as that which emerged from the post-Listerian period—that the one agent of successful surgery, whether war surgery or civil surgery, is *the good surgeon?*

In civil surgery here in America, by what agency was mastery achieved over appendicitis, over cholecystitis, over tubal infection, over adenitis? What agent has contributed the most to the success of resection of the intestines and of the stomach; of gastroenterostomy; of treatment of suppurating stone in the kidney; of the treatment of infection of subcutaneous tissue? What agencies have achieved survival? One and but one—*the sound surgeon*, who always creates opportunity. Is it possible that in these four intense years of war surgery in which more experience in traumatic surgery has been accumulated than during the past thirty years we have traveled around the same circle as in civil surgery and have again found *the same surgeon?*

Exponent of No Single Method

By sound surgery we mean the assumption of complete inclusive responsibility for every item that enters into the result; the consideration of the wound as well as the patient; the development of an ability to read the wound as well as the man, aright. Sound surgery means quick, innocuous, timely intervention; it means seeing clearly the to-morrow of the wound; it means no intervention unless there is to be a net gain; it means a sharp knife, a good anesthetic, a painless innocuous dressing; it means as much respect for the tissues of the anesthetized man as those of the unanesthetized man; it means a training in judgment that unerringly tells when to cut, how far to cut, when to quit cutting; it plays all the defenses and reparative forces of the patient.

Good surgery is the exponent of no single method. It recognizes the anatomical and environmental situations in which chemical and physical agencies are useful. Good surgery exploits physiologic rest, and fluids, and sleep; it gives little pain. Good surgery evokes confidence, and confidence begets restoration. Good surgery, then, makes use of antiseptics and physical forces, just as it uses incisions, counter-drainage, revisions, skin grafting, blood transfusion. Good surgery does not substitute an easy formula for its principles; above all, it always is dissatisfied with its work and always is open to suggestion.

What could the good surgeon accomplish with the wounds of war with good opportunity but no antiseptics? Without antiseptics he could close by primary union a higher percentage of con-

taminated wounds than with antiseptics; he was able to remove damaged tissue with such accuracy that the natural defenses of the revised wound became its best antiseptic; he closed penetrated knee joints more securely without than with antiseptics; he closed penetrated skulls without, better than with, antiseptics; he cleared up foul and infected superficial wounds as well without as with antiseptics; he met gas gangrene with the timely use of the knife as well without as with chemical agents. He closed healthy superficial wounds with early suture tied lightly; healthy wounds that could not be closed by suture he closed by skin-grafting, both as a healing and as a bacteriocidal policy; he closed fecal and urinary fistulae without antiseptics.

On the other hand, he realized equally that in compound fractures with or without bone infection, in deep, recessed wounds in pyogenic infection in many other types of wound that antiseptics might have great advantages, and he used them and used them well. In certain phases of a wound he would use Carrel-Dakin; in another, acetic acid; in another, hot pack; in another, incision—a physiologic incision today to avoid the tissue-tension of tomorrow; in another transfusion; in another, sunlight or electric light; in another, continuous alcohol to make a scar covering. In the rush of a great battle, he incised for drainage and, in addition, he made physiologic incisions to avoid the tension that is sure to follow the next day from the inevitable infection.

But in quiet times, he dissected out every atom of devitalized tissue. He read accurately not only the wound, but the patient; not only the patient, but the military situation; not only the military situation, but the condition of the infecting soil, the state of transport, his surgical assistance, and the type of nursing care; that is, he weighed accurately his chances for success. Therefore, the army medical service and the wounded man pinned their hope and their faith first, last, and always to the one agency of wound treatment that in civilian surgery emerged clearly from the confusion of the Listerian period, emerged clearly from the confusion of the four years of military surgery—*the sane, sound surgeon.*

Asks Military Rank for Nurses

Among resolutions adopted at the meeting of the American Hospital Association was one which called upon Congress to bestow military rank upon nurses of the military and naval forces. The resolution urges that military rank be given nurses relative to the rank of officers having corresponding responsibilities and authority in order that they may properly and efficiently discharge their duties and, also, in order that hospitals and training institutions may be able to induce capable women to enter the service and to undergo training.

HEALTH EDUCATION IN INDUSTRY

BY W. A. EVANS, M.D., CHICAGO*

IN THE fight against premature death and disablement due to accident, injury, and illness progress is being made in certain directions but not in others. The bacterial diseases, with the exception of pneumonia, bronchitis, and influenza, have been very greatly decreased. The death rate of infants and older children from all causes has been greatly decreased. These two decreases have been considerable enough to lower greatly the death rate. Heart disease, Bright's disease, apoplexy, and diabetes have very materially increased.

Individual Habit and Community Custom

We attempt to make a distinction between diseases due to habits and those due to customs. For instance, the bacterial diseases in the main are spread by community customs. The habits of the individual are of lesser importance than the mass habits called customs. On the other hand, in the case of diabetes the larger factor is the habit of the individual. While many flaws can be picked with this classification, in the main it serves to make a useful distinction with a reasonable degree of accuracy.

Applying the rule, we find that in the main the diseases which are on the increase are those due to faulty habit. Another line of division would be on the basis of organized effort at prevention. Applying this rule broadly, we find that the improvements have been in that group where preventive effort has been made and the lack of improvement has been in those where there has been neglect.

When we come to study accident rates we find that there has been a tendency upward for fifty years. The fatal death rates from all external causes by decades in Chicago since 1867 have been:

1867-76	93.2
1877-86	90.6
1887-96	122.6
1897-1906	106.3
1907-16	120.8

The most effective method of health education is by personal, individual work.

Personal hygiene and safety work when viewed from the standpoint of the general pronouncements on public health are cut from the same cloth. So also is accident prevention.

In the main, diseases which are on the increase are those due to faulty habits. To bring about the desired end, the habits of the people must be changed. Each person, while his muscles are doing their customary work, must be taught to carry in the back of his head a subconscious realization of hazards and an instantaneous response to stimuli of danger.

The rates for 1917 and 1918 were 118.1 and 99.8 respectively.

In an effort to analyze these figures I have come to this conclusion: in the rearrangement of the classification of the causes of death it would be wise to divide external causes into those where there is intent to injure and those without intent. The former are not related to carelessness. In this group there should go suicides, homicides, and legal

executions—numbers 155, 155a, 155b, 155c, 155d, 156, 157, 158, 159, 160, 161, 162, 163, 177, 182, 183, 184, and 186a—eighteen causes in the Bertillon classification responsible for more than one-fourth of the deaths due to external causes.

I suggest that when the next revision of the Bertillon classification is being considered you be represented and that you endeavor to bring about such revisions in the nomenclature and classifications as will make it easier to marshall the facts relative to accidents. Also that you have proper governmental agencies collect and tabulate non-fatal accidents.

Rising Death Rate in Some Groups

Returning after the digression, we find that the tendency of rates for deaths from all causes to rise is due to a rise in the rates for homicides, suicides, and what have been termed public accidents, and that this rise has been enough or more than enough to compensate for the decrease in industrial accidents.

Between 1913 and 1917 the number of fatal accidents in industry fell from 25,000 to 22,000, an improvement of 12 per cent; the number of serious accidents from 700,000 to 500,000; and the number of accidents serious enough to keep a man from work six weeks or more from 300,000 to 26,000, a fall of 26 per cent. This improvement was due to education of both employer and employee, and the use of safer types of machinery.

*Read before the Eighth Annual Safety Congress of the National Safety Council, Cleveland, Ohio, October 1-4, 1919.

During the last seven years the employer class has become greatly interested in accident prevention, the employee class moderately so, but the interest of the general public has lagged far behind. In 1917, of the 77,000 fatal accidents in the United States registration area 55,000 were outside of industrial plants. Of the 510 fatal accidents in St. Louis in 1917, 400 were outside of industry. Of the total death rate from all causes in the registration area of about 14 a little more than 1, or one-fourteenth of the whole, is due to violence. In 1901-5 the violence rate was 101.7; in 1906-10 it was 1.07. Since 1910 it has been: 1911, 1.04; 1912, 1.04; 1913, 1.08; 1914, 1.02; 1915, 0.99; 1916, 1.05.

Accident Prevention Policy Needed

As a side light showing the importance of fatal accidents in determining the total death rate, I call your attention to the appended table.

This table shows the death rates per 1,000 from disease and from accidents in the Canal Zone among employees between 1906 and 1907 and compares them with the fatal accident rate in the registration area in the United States. At one time the fatal accident rate in Panama was four and one-half times that in the United States. It is even yet one-third higher. The death rate from disease fell from a maximum of 40.5, thanks to intelligent, well supported effort. The very high fatal accident rate fell only from 4.52 to 1.35 minimum. I hope when we come to build another canal we will have an accident prevention policy

TABLE SHOWING NUMBER OF EMPLOYEES' DEATH RATES FROM ALL CAUSES, DEATH RATES FROM DISEASE AND DEATH RATES FROM EXTERNAL CAUSES AMONG THE EMPLOYEES OF THE PANAMA CANAL ZONE, 1916-1917, INCLUSIVE

Year	No. employees	Death rate	Disease death rate	External causes rate
1906	26,547	41.73	39.66	2.07
1907	39,238	28.74	25.44	4.30
1908	43,891	13.01	8.65	4.33
1909	47,167	10.64	7.55	3.09
1910	50,892	10.98	7.5	3.48
1911	48,876	11.02	7.65	3.38
1912	51,852	9.26	6.36	2.81
1913	56,654	8.35	5.24	3.11
1914	44,329	7.04	4.40	2.64
1915	34,755	5.77	4.05	1.72
1916	33,176	6.03	4.58	1.45
1917	32,589	7.09	5.74	1.35

NOTE THE FOLLOWING POINTS:

- (1) The personnel referred to were almost all adult males.
- (2) Negroes predominated.
- (3) The work was done largely out of doors with heavy machinery. The climate was unhealthy but the efforts to control disease were exceptional. In none of the reports is there any stress put on accident prevention.
- (4) The fatal accident rates of 1908 (4.33) and 1907 (4.30) were higher than the disease death rate of 1915 (4.05) and only 1.44 per 1,000 less than the death rate from all causes in 1916.
- (5) The death rate from disease after 1911 was exceedingly low.
- (6) The death rate from accidents was very high every year.
- (7) The improvement in the death rate from disease is far greater than the improvement in the fatal accident rate.
- (8) Doctor Gorgas explains that the very high death rate from disease in 1906 was due in greater part to an epidemic of pneumonia.
- (9) The rapid rise in the death rate due to external causes in 1907 he explains is due to more blasting and railroad work.
- (10) In 1906 he says there were 35 deaths among the white employees of which 19 were from disease and 16 from violence.

comparable to the disease prevention policy employed when the Panama Canal was being dug.

After showing the steady decline of accidents in industry between 1913 and 1919 Payne says: "There is another story for public accidents or accidents occurring in the home, on the street, and generally outside of industrial establishments. There has been a marked growth in the number of this type of accidents in the past few years. The reason for this rapid increase in the number of public accidents while the industrial accidents have as rapidly declined, is that industrial managers are thoroughly aroused to the necessity of accident prevention in their plants, but the public in general is still unconscious of the significance of safety."

A Change of Habits Involved

To bring about the desired ends it is not enough to inform and instruct. That does not go far enough. The habits of the people must be changed. Each person must not only know what practices are safe and what hazardous, but he must apply it to himself. In the back of his head he must carry the thought constantly. While his mind runs in its proper grooves and his muscles are doing their customary work, there must be a subconscious realization of hazards and an instantaneous response to stimuli of danger. It may be that a tendency to go about in an absent-minded trance must be corrected or that a natural incoordination and clumsiness must be overcome.

This is the problem. How can it be solved? The solution, when found, is to be applied to the employer group including general managers, superintendents, and all bosses, the employee group including all who feel no responsibility for others, and the general public. The employer group are very well informed, but for one reason or another many are indifferent; at least, many do not act at all and others act somewhat thoughtlessly. The employee group are less well informed and less interested. The general public are most in need of information and of interest.

Mass Habits by Decree

Recently a great professor in a great university wrote as follows of personal hygiene: "Personal hygiene is not a subject that can be advanced by public meetings. It has to be worked out by, or with, each person individually." A good answer to this opinion appeared in the headlines of a daily paper issued about the time this letter was received. It read: "Dress designers call for larger hips this season. Checks and stripes and lots of yellows appear to be favorites."

When fashion decrees that hips are to be

larger, hips will be larger; or that checks, stripes, and lots of yellow are to be worn, you can bet they will be worn. It will scarcely be denied that fashion determines wearing apparel, clothes, shoes, the shape of the feet, in great measure the food and the methods of its preparation, and in some measure hours of sleep. Now no one will contend that fashion is worked out by or with each person individually. An impulse, or not infrequently a convention of the interested, issues a decree and forthwith the civilized world obeys it. There is no other field where there is so little individuality, so little work by or with the individual.

All of the items specified in the above paragraph—clothes, shoes, food, sleeping hours—are matters of personal hygiene. Now, personal hygiene is a matter of good habits on the one hand or bad ones on the other; and so is safety work; when viewed from the standpoint of the general public work pronouncements, feats, discussions, are cut from the same cloth. What I have said about personal hygiene applies to accident prevention; if there is no field for any but individual effort in personal hygiene, the same holds true of accident prevention. On the other hand, if public work pronouncements, feats, discussions, newspaper articles, publicity, can affect changes in matters of personal hygiene they can be effective in accident prevention.

Limitations of Individual Effort

I agree that the most effective method of education is by personal individual work. I am for it as strong as any one; but it has limitations which make it impossible as a solution of our difficulties. It is tedious, expensive, and requires too much machinery to be practicable as a means of meeting the whole situation. There are great possibilities for the group method even in educating adults. I propose to discuss some phases of some of the group methods.

Education by means of moving pictures is so well understood that I need not say much about it, but let me offer you this suggestion. Try one short run of lessons in a program of lighter stuff. When health commissioner of Chicago twelve years ago, I found that evenings devoted to health talks and health pictures lost their pulling power; whereupon I sent around to the moving picture places single reel health films to be run unannounced between two numbers of the regular program, the audience being assembled with no thought of a health reel and in the main indifferent to such a subject.

Cards, bulletins, and booklets are always useful. I recently read a criticism of the propaganda

cards of the Chicago health department; for example, such a card as this: *Swat the Fly*, or this: *Dirty Air Means Death*. The particular card objected to was one saying that any sore throat was liable to be due to diphtheria bacilli and calling for throat culture in every such case. The card was one displayed in street cars. The criticism was that the statements should have been qualified; that more information should have been conveyed; that brief, dogmatic, pragmatic statements are always inaccurate. Of course the criticism was justified. The Chicago Health Department recognizes this. They would not offer this card as a treatise on diphtheria; on the other hand, a treatise on diphtheria has no place in the advertising space of a street car.

Putting Over the Message

Once a pedagogue criticised a statement of mine to the effect that I was educating people stating that I was instructing them. As I understand it the word *sharks* say that a man instructs when he imparts information but that he does not become an educator unless the instruction imparted "changes the ways of those who receive it." Now an essay on diphtheria is instructive, but the chance that a street-car card will cause somebody to change his ways is much greater if it uses a few words and perhaps a picture to put over a message.

There is a place for the longer treatise, the essay. The whole question is one of salesmanship. Here are some men with information—the goods. Here are a lot of men in need of the goods, but not especially anxious to buy. How can the goods be sold? That is the question. As I see it the place of the complete treatise is for distribution among the leaders. The others will not read it nor understand it. The purpose is to instruct the leaders with a view to having them translate the information, precept, or point of view into the psychology of the followers. The purpose of the short statement is to arrest the attention and secure the adoption of the man who is not greatly interested, who will not give attention for long, who will not make fine distinctions and who will not try to remember.

Psychology of Selling

The men who advertise goods know the selling power of a slogan. Slogans to be effective must be short, catchy, and easily remembered. They must be positive. Negative slogans are not so effective. They must imply action. "*Swat the Fly*," fills all the indications well, "*Do Not Spit*," does not. In making cartoons, size of type, color

schemes, pictures, are matters to be carefully thought out. The use of slogans comes under a well recognized principle of advertising. In the words of Lord Fisher, "Reiteration is the secret of conviction." It is well to change cards, frequently as to location, type, color schemes. We become inattentive—blind, to anything that is steadily before us. So much for the cards.

In between the cards and the booklets there comes a place for the leaflet. As to leaflets I have certain suggestions to make. The fundamental suggestion is that you bear in mind the psychology of the men to be approached, giving it preference over the subject matter to be presented. Based upon this are the following suggestions:

Use should be made of the universal love of gossip.

Wherever it is good judgment, bulletins should say something about individuals, using names, addresses, and incidents, news of the plant.

Incidents and occurrences should be made the basis of stories.

Records of accidents should be published making use of the spirit of competition.

Advantage should be taken of symptoms, disorders, diseases, and accidents to distribute leaflets.

There should be a series, with one for each group of subjects.

I get between fifty and one hundred letters a day. An analysis of these letters shows that for every one interested in prevention, there are ten interested in the cure of a developed disorder, the actual figures being 66 and 660. This shows that the overwhelming interest is in developed conditions. "The devil was sick—the devil a monk would be." Although I write most about hay-fever in the spring, nine-tenths of the people who write me about hay-fever write well after the onset of the hay-fever season.

Habits and Degenerative Diseases

Most diseases of the degenerative group are the result of bad habits. The most effective way to write about a given bad habit is to tie it up with some disease which grows out of it. For one illustration—tell the news about some person with diabetes, then touch on diabetes in general and, finally, expiate on the habits of excessive sugar and bread eating; or give the news of some accident, tell of accidents of this type, and then dilate upon carelessness. These make ideal presentations. In these longer presentations I can see no objection at all to exciting controversy.

Recently, on successive nights I went to a forum where the room was crowded, as it always

is, and to a meeting of the board of directors of another forum called to discuss the advisability of discontinuing because of lack of interest and non-attendance. The reason for the success of the first was knowledge of salesmanship, and of the failure of the latter lack of such knowledge. I inquired of the platform manager as to the reason of his success. Among other things he told me was this: Always start a row. Always make somebody mad. Meetings thrive on controversy. Occasional bulletins containing controversial matter is in line with good salesmanship.

A Special Angle for Foreigners

The approach to foreign-language-speaking people is at once easy and difficult. They do not read English and most of them read very little in any language; but this very fact means that their minds are not dulled by a multitude of impressions. Anything that you can get across goes big. Slogans are usually slangy. Slang does not translate well. Prizes for slogans in tongues other than English will bring forth some that are catchy for foreigners.

I suggest that concerns employing foreign-speaking people use the newspapers of those people for accident-prevention education. They read their newspapers through, even to the advertisements. I suggest that in matter written for these newspapers there be some stories written with the thought of the harmfulness of carelessness, the inferred benefit of caution constituting the accepted key thought, yet nowhere stated. In these articles suggestions of control and compulsion should be minimized.

Since so many foreign-speaking people do not read, it might be well to employ some pensioners and disabled men as conversers, talkers—the functionary corresponding somewhat to the Jewish schnorrer, to go among the men and subtly talk the harmfulness of accidents.

But the larger field for personal and oral presentation will be lectures and demonstrations. Very efficient use has been made of lectures, illustrated and non-illustrated. Let me suggest that the method be varied occasionally by introducing a brief lecture unexpectedly into a program arranged on a basis of entertainment solely. Thus you will secure a little of the time and thought of the indifferent. Such a lecturer, remembering the lack of interest of most of his audience, will do well to speak briefly, epigrammatically, making use of catchy, easily remembered phrases.

On the market there are now several automatic projection machines which makes it possible to use still life pictures to advantage if their pictures and texts are frequently freshened and if

the location of the machines are changed occasionally.

Occasionally advantageous use can be made of talking machines; for instance, short talks by Judge Gary, Mr. Rockefeller, Lloyd George, President Wilson, and the presidents of great corporations would prove effective.

Expositions, museums, and kindred methods are of service in educating employers, as well as museums of safety and other permanent exhibits, such as the display in the rooms of the Illinois Labor Bureau. Hazardous machines with dangerous parts advantageously may be set in rest rooms.

So much for the education of adults which is always a difficult thing to do, and expensive, and wasteful.

Education of Children

The education of children is a far more satisfactory field. I have read with interest "Education in Accident Prevention" prepared by Dr. E. G. Payne upon request of the National Safety Council. It is a guide book for teachers. In other words, it may be considered an excellent work for the education of teachers in the teaching of accident prevention. The United States Public Health Service and various state boards of health have prepared text-books on health subjects to take the place of ordinary readers. As I understand it, none of these has ever come into very wide use. Teachers have explained to me that they must use the adopted text-books, and no book agents ever attend the meeting of the adoption boards to secure the adoption of these free health readers.

If you go into the text-book field there is but one way to do and that is to play the game as it is played. It might be advisable for you to consider cooperation with the health people in the production of readers, spellers, and other texts making use of such stories as you could furnish as material for the books.

There is a general agreement among teachers that teaching should deal more with the experiences of the day. Even first and second readers would be more interesting if they carried some experiences from the workshop and the home rather than many of the stilted, far away stories now carried. When you get into this field, if you do, play the game as it is played.

Accidents on Economic Basis

Payne says that while industrial accidents are limited very largely to adults, the same is not true of public accidents. In 1916, 10,534 children under ten years of age in the registration area

were killed by accidents, with perhaps 250,000 others severely injured.

This is a good place to say that discipline is a most potent factor in the prevention of accidents. Childhood is the time to teach discipline.

Far and away the most potent educational influence of accident prevention was the passage of the workmen's compensation laws. The placing of accidents on an economic basis was directly responsible for much of the result. A great part of its effect came through creating a background for the National Safety Council and its superb educational work. Thus indirectly and directly workmen's compensation was responsible for the "Safety First" movement. Personally, I would like to see the application of the same principle to prevention of accidents in fields other than in industry, and in the general prevention of disease.

Eight-Hour Working-Day for Sweden

The Upper Chamber of the Riksdag of Sweden on September 29 passed a bill providing for an eight-hour working day, the Lower Chamber having recently passed the same bill.

CANADIAN COLLEGE HAS EMPLOYMENT MANAGEMENT COURSE

The experiment of the University of Toronto in establishing a short course on employment management attempts to solve some of the difficulties of labor management.

The college will provide courses in personal management, industrial, psychology, and economic principles and methods. Two of the lecturers are Lieut. Col. John J. Coss, of Columbia University, and a member of the War Industries Board of the United States, and Dr. E. K. Strong, of the Carnegie Institute of Technology, Pittsburgh, and a member of the committee on the classification of personnel in the United States Army.

FATIGUE LOWERS MORAL RESISTANCE SAYS JANE ADDAMS

While emphasizing the importance of furnishing, especially to women workers, a stimulus to sustain them, Jane Addams, in a recent address before the International Conference of Women Physicians, discussed the psychologic as well as the physiologic side of fatigue. She says there is an appalling connection between excessive fatigue and delinquency.

The personal equation was brought out and a discussion of fatigue by Dr. Frederick S. Lee, of the College of Medicine, Columbia University, who declared that the eight-hour day will not solve the problem; that eight hours is too long for one job and too short for another; that working hours and suitable rest periods must be worked out for each job, and workers must be adapted to the labor required of them. The examination of 2,500 women factory war workers in England has shown 42 per cent to be suffering from excessive fatigue, which seems to emphasize that especially is it essential for women in industrial work to be physically fitted to what they undertake to do.

INDUSTRIAL CLINICS IN GENERAL HOSPITALS

BY D. L. EDSALL, M.D., DEAN, HARVARD MEDICAL SCHOOL, CAMBRIDGE, MASS.*

C LINICS in industrial plants for the immediate care of injuries and medical ailments have become of undisputed value and laws are being passed to require them. They need no argument now with those of open and educated mind and I have no need to discuss them as they are outside my personal field. The character and extent of the service that they will render may ultimately go far beyond what is now done in most plants, though this is of course a very debatable question since it is by no means certainly desirable, and because it conflicts with the established interests of medical practitioners. But, however far this may progress, for an indefinite time to come, if not always, general hospitals will be the centers for groups of experts in the various clinical and laboratory lines that are now essential in the diagnosis and treatment of patients and in the study of problems of health.

Individual industrial establishments can scarcely be conceived of as having each within their own employ a group of leading men in all the various lines of clinical and scientific medicine. Hospitals, particularly those connected with medical schools and with the staffs that the latter have, will always, therefore, need to be centers for the study and treatment of difficult cases and for the investigation of problems, however far health establishments in industrial plants may progress.

Industrial Clinic a Necessary Adjunct

At the present time, however, the general hospitals receive and they will long continue to receive not only complex cases but the every day routine sort of case for ordinary diagnosis and treatment, and they have in their clientele, all told, a greater number of industrial workers than any other organized establishment for the care of the sick. In performing their simple daily round of duty, as well as in acting as consultation centers, the hospitals cannot give proper service

The industrial clinic furnishes sources of new knowledge and opens the way to studies in new directions through an accumulation and analysis of records based on diseases and injuries of industry.

A second noteworthy feature of the industrial clinic is the relation possible between the clinic and medical schools and the opportunity to train students into an appreciation of the place of medicine in industry.

Although not a separate science, but a work based upon various sciences, the study and recognition of the hazards of industry and their effects are a clear cut and well defined type of work.

unless they have on their staffs persons familiar with industrial hazards and their results, who will be alert to recognize these and capable of determining their importance or insignificance in individual cases. Let us contrast this matter with others that are comparable.

No hospital is capable of giving what is now recognized as good diagnostic or therapeutic service to patients with

infectious diseases, for example, unless it has available the men and the equipment for expert bacteriological work any more than it could give good surgical care without surgical equipment and expert surgeons.

Although not a separate science like bacteriology, but work based upon various sciences, the study and recognition of the hazards of industry and their effects are a clear cut and well defined type of work. Its problems are quite as definite as those of bacteriology and, while they are even more varied and complex, the nature of many of them and the method of attack upon them are clearer and in expert hands more likely to be successful.

Industrial Origins of Disease

The possibility of an industrial origin of health disturbances and the need of determining this point comes up, too, in the great bulk of the hospital clientele; in fact, its possible importance needs to be considered in a far larger percentage of cases than does any other health factor. In the first year that our industrial clinic at the Massachusetts General Hospital was so organized that it received the greater part at least of those patients who might be suffering from effects of industry, and in whom this needed to be determined with care and through trained and intelligent inquiry, more than 5,100 persons were sent to this clinic for investigation; of this number

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approximately one-tenth showed actual results of their work that were at least of noteworthy, and often of dominating importance in explaining their ill health. In most of these instances, the question could not have been settled and, in those in which there was a relation, the connection would have been overlooked had the investigation been done in the customary way by persons who had not accumulated interest in and extensive knowledge of the possible relations of the patient's job to his illness.

This is clearly shown in our experience in that time in lead poisoning. A special search was made for lead poisoning in all persons in whom careful inquiry showed any exposure to lead. Ordinarily the poisoning is looked for only when either the hazard is obvious and commonly known or the symptoms clearly suggest it. The difference in method had the result that the same number of lead cases were found in one year by special search as were diagnosed in five years by the ordinary methods and this in the same clientele coming from the same general line of industries.

Specific Trial Convincing

A considerable trial of a special industrial clinic in a general hospital and of other less well defined methods of attacking the problem of the relation of industry to general medicine has convinced me that no other method than a special clinic goes so far to insure good service to the patients and no other method so stimulates and enlightens the interest of the hospital staff in general in this important health factor. Likewise, by no other means is it possible to group the cases together in such manner that the results of study can be analyzed and made available, and in no other way does there occur such an accumulation and repetition of experience as to make evident and important problems that had been unrecognized or had seemed of little significance.

To be really useful and successful, several things appear to be necessary. The clinic should be in charge of a physician whose greatest interest is in the work, and he should be on sufficient salary to enable him to spend most or all of his time at the work. This is necessary in order that he may properly develop his clinic and may be free to make visits to factories in order to accumulate constantly increasing knowledge of industrial processes, and in order to determine day by day whether in doubtful cases seen in the clinic the work really explains a part or the whole of the effect upon health. Much of his time will be needed also in making studies in the clinic,

in factories, and in the laboratory of the problems that are frequently suggested; and in this he will have many opportunities to keep occupied voluntary or paid assistants.

The Social Worker an Aid

Another essential element in the clinic's success will be a trained social worker who is familiar with factory conditions and industrial processes as well as with general social conditions. Through her will be best handled many of the social details of the records and she will be able to investigate both home and factory conditions in order to provide the essential knowledge of the relative bearing of the home and the factory upon the health of the patient. Such a small paid staff is necessary for success. From this it may easily be enlarged with voluntary or paid workers as occasion demands. Furthermore, a method must be adopted which will make sure that all cases with interesting or suggestive industrial relations get to the clinic. It will not suffice to depend upon those in the medical, surgical or other clinics for sufficient interest to refer cases either spontaneously or upon request. They usually do not recognize the hazard or its relation to the patient, and in the pressure of their work they frequently forget to send any that they do recognize.

We have with some success adopted the plan of having a social worker, who is sufficiently instructed in industrial hazards to serve in this way, stamp the cards of all new patients as they enter if their occupations come within a list furnished her or if they otherwise seem interesting. Whatever other clinics they go to, they must when so designated go also to the industrial clinic before leaving. The other social workers in the various clinics are also instructed to send to the industrial clinic any cases showing points of interest in relation to industry. Cases that are primarily of industrial interest, especially certain groups that are being particularly studied in the industrial clinic, are transferred to that clinic for regular care; others are simply referred for diagnostic, therapeutic, or preventive advice while their management is continued in the other clinics.

Carried out consistently in this way, the clinic will, in any large out-patient department, have abundance of material both to provide wide experience in industrial effects upon health and, also, for study of the problems that local industrial activities furnish. Some of these problems will be already known; some will become apparent from time to time as a large number of people pass through the clinic and the possible relation

of a job to a disorder becomes emphasized by repeatedly meeting the possibility.

The Value of Such a Clinic

The primary value of such a clinic has been, in my mind, the better care of the patients. Equally obvious are the opportunities for furnishing new knowledge and thus improving conditions through carefully planned studies and through accumulation and analysis of records.

Likewise important to a hospital that has relations with a medical school is the opportunity to train all students into an appreciation of the relations between varied industries and medicine, and to give special and detailed training to undergraduates or graduates who wish to become especially qualified in the medical service of industry. The latter students can be given thorough knowledge of a limited number of hazards through serving temporarily in one or more plants. In no other way, however, than in such a clinic can they so well be given a comprehension of the extremely numerous and varied things they should be prepared for and then have opportunity to observe in factories a considerable number of these types and the methods of controlling them. By serving with the staff in the industrial clinic, and in the factory visits the clinical work leads to, they obtain a wide general training in elementary knowledge of these things that otherwise would be obtained only slowly, laboriously and unsystematically.

The Wide Range of Benefits

Beyond those mentioned, however, we have found other not unexpected sources of interest and helpfulness arising through the clinic. Diagnoses made in individual cases or advice given to the patient have often been transmitted to the employer with the result that he has thereby first recognized the existence of that hazard in his plant or first seen how it may be controlled. Employers have frequently extended the advice to cover all those exposed, have investigated conditions not previously studied, or have sought further advice from us or from others on the problems involved. This has been especially true of the small employer who has but slight or no health service in his establishment, but it has repeatedly occurred with large plants.

Labor unions have also at times come to us for health advice through some of their members having been in the clinic. Fairly and tactfully carried out, the relations with labor unions may be made very useful in furthering industrial health, among other reasons because a clinic in a general hospital is obviously not subject to the

suspicion with which the unions unhappily often have regarded the health service in their own industry.

The Impetus to Research

The largest possibilities of useful development lie, however, in the research that can be carried out if the clinic acts as a center for coordinating the problems that are unearthed in it with the health and technical departments of the industries, on the one hand, and on the other, the men and facilities that are found in medical schools and hospitals. There are among these two groups and their equipment the possibilities of attacking all sorts of problems and, not infrequently, of solving them. Research developments that will control or do away with hazards are, of course, in the long run far more important than the diagnosis and treatment of a group of cases, important as the latter is.

In the past several years cooperative studies of blood problems, problems in pure physiology, problems in metabolism or in biochemical matters, toxicological problems, problems of general hygiene and sanitation, and others have appeared desirable as a consequence of observations in the hospital clinic. Some of these have been carried out with our colleagues in the medical school and hospital in spite of the heavy pressure of war conditions.

Industrial Surgeons Aid Studies

Studies have also been made in cooperation with physicians in charge of large plants and several corporations, some of them very large, have offered the cooperation of any portion of their research departments in working out the technical industrial end or the engineering aspect of some hazard, the existence of which observations in the clinic had suggested. In this way as in most others our clinic, as well as our whole method of attack upon industrial medicine from the hospital or the academic standpoint, is really in its infancy; but progress thus far seems to open a vista of real public service if the varied departments of hospitals and medical schools can develop cordial cooperative relations with the health departments and technical departments of industries. Unlimited possibilities of good results with satisfaction and credit to both sides seem open and the problems and the opportunities for interesting and serviceable work grow constantly as one studies the matter.

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THE SCOPE OF THE PHYSICAL EXAMINATION IN INDUSTRY

BY C. D. SELBY, M.D., TOLEDO, OHIO, FORMERLY CONSULTING HYGIENIST, UNITED STATES PUBLIC HEALTH SERVICE*

INDUSTRY exists solely for the purpose of converting raw materials into finished products of marketable value. Labor is employed in industry for the assistance it is in the accomplishment of that purpose, and its value is fixed by the skill and facility of its effort in that direction as manifested by the quality and quantity of its output.

Formerly, when labor was plentiful and the margin between the cost of production and a moderate selling price was sufficient to bring a reasonable profit, industry gave but little concern to labor. Workingmen came and went as they saw fit, were hired and fired as suited the fancy of their bosses, or were let out in dull seasons and taken on again when business improved. No well-thought-out attempt was made to offset destabilizing influences, and practically none to improve skill.

More recently, when labor has become relatively scarce and the cost of production higher, industry has been forced to realize that it has a problem in its labor relations; in fact, industry concedes this to be among the serious, if not the most serious, of its problems. Though old in existence, having been ignored, it is relatively new.

Employers do not yet know how to solve this problem. They are groping. They have created welfare departments, employment, service, and sociological departments, have sought to amuse, edify, and pacify the working people, have divided profits with them and have appointed them to act on joint committees in the determination of policies—with little effect as indicated by the present unrest, the greatest the world has ever known.

Employers are still groping, and they are progressing. Labor turnover has been studied, absenteeism investigated, and the cause of spoilage and breakage sought. Information of value has been gained. It has been learned that the most

The physical examination has become an important element in the science of modern industrial management. It is fundamental to the successful practice of industrial management.

The physical examination is the means whereby physicians acquire the information they deem essential to the procurement and maintenance of healthy, physically competent, workers. It is the basis of medical knowledge in industry.

The procurement of health and physical competency among working people requires that they be assigned to such jobs as they are or can be adapted to, with rejection as a last resort.

such workmen; if unable to procure them in the usual way, to develop them; and, having them, to retain them by offering favorable working conditions and opportunities for further development and advancement.

Physical Adaptation to Job

The procurement of healthy, physically competent workmen may imply the rejection of those who are not so. However, it does not necessarily follow that such should be rejected outright and deprived of the privilege of gainful occupation. There are positions in industry, in fact, in virtually every plant of reasonable size, that people of varying sub-standard conditions of health and body can fill with efficiency, to the profit of their employers and themselves. For example, defective eyesight may justly disqualify a man from operating a machine that requires acuity of vision, yet permits him to supervise a gang of laborers with competency. Again, a chronic bronchitis may render employment in a foundry hazardous and unprofitable, while in the open it may have no detrimental effect. Even the blind and the legless, the tuberculous and the nephritic, are capable of productive labor under proper conditions of employment. Only the manifestly unfit and the victims of communicable disease should be rejected, is a growing opinion among employment managers. The procurement of

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health and physical competency among working people requires that they be selected for and assigned to such jobs as they are or can be adapted to—with rejection a last resort.

The maintenance of a healthy, physically competent force of employees requires that working conditions shall be such as to safeguard health and limb, that workmen shall have knowledge of how best to live and labor in compliance with the laws of health and safety, and that health and limb shall be restored as promptly and effectively as possible after impairments or disease have occurred.

The service of physicians, originally sought for the treatment of injured workers, has been found to be of use in the procurement and maintenance of healthy, physically competent working forces. Medical knowledge and skill are, therefore, welcome to industry, for anything that is capable of assistance in the stabilization and improvement of working forces is welcome. Because of this, medicine has come to be an important branch in the science of modern industrial management.

Examination Advantageous to Men

The physical examination is the means whereby physicians acquire the information they deem essential to the procurement and maintenance of healthy, physically competent working forces. It is consequently the basis of medical knowledge in industry and is fundamental to the successful practice of industrial medicine.

The scope of the examination should be broad enough to enable physicians to gather the information that is requisite. This means it should uncover defects and diseases that render employment hazardous to him who seeks it or to his fellow workmen. It should uncover imperfections that contribute to inefficiency. It should uncover diseases and sub-standard conditions of health. In short, the examination should be such as to divulge the true condition; it should be fairly comprehensive.

Although a complete physical examination, with blood pressure readings, urinalysis, and other laboratory tests, is a desirable procedure to follow in industry, it is not always practical. In the first place, industry has not found it necessary except in unusual cases and, in the second place, industrial physicians are usually too pressed for time to investigate deeply. Experience has gradually evolved four grades of examination, depending upon the objective sought, which in turn is frequently fixed by the policy of the company concerned. They are as follows:

(1) *Superficial Inspection*—This consists of a hasty survey for obvious defects and appar-

ent sickness. It considers height, weight, appearance, deformities, distance vision, hearing, hernia, and occasionally the heart and lungs (stethoscope applied outside of shirt). Its objective is *rejection* of the evidently unfit and exclusion of communicable diseases.

- (2) *Inspection*—This consists of a more complete survey. All parts of the body are exposed and their condition noted. Diagnostic instruments are used when in the opinion of the physician they are needed. This is practically an examination—without urinalysis and other laboratory tests. Its objective is *selection and assignment* of workers.
- (3) *Examination*—This consists of a reasonably complete survey of the body according to accepted methods, and includes blood pressure readings and urinalysis. It is virtually the same as the examination required by life insurance companies. Its objective is not only the selection and assignment of workers, but their *health supervision* as well.
- (4) *Special Examination*—This consists of all measures that are necessary to a thorough study of the body, including intra-ocular observations, gastric analysis, rectoscopy, cystoscopy, x-ray interpretations, investigations of the nervous system, blood counts, etc. Very few industrial physicians are prepared to make such elaborate and painstaking examinations. Individuals needing them are usually referred to consultants. The objective of the special examination is the *diagnosis* of obscure diseases and pathological conditions. It belongs rather in the realm of internal medicine than to industrial clinics.

Inasmuch as by far the greatest number of occasions for investigation into the physical state of industrial workers occur when they seek employment, the inspection would appear to be the most useful of the four grades. It has the advantage of gaining enough information to enable physicians to eliminate the manifestly unfit, if desired, to advise intelligently in the assignment of others, and to do so with a minimum expenditure of time. Furthermore, it secures enough information for physicians to determine which individuals must have additional study in the form of the examination or special examination, for the intelligent supervision of their health.

A Plan in Operation

To exemplify the author's conception of the scope of examination or, more properly, the inspection, the routine in use at the Toledo plant of

the National Malleable Castings Company is outlined as follows:

The worker is received fully clothed and remains standing until the feet are inspected. He is greeted in a friendly manner, and attempts are made to put him at ease if he is embarrassed or backward.

1. As he enters, gait, carriage, and appearance are observed.
2. He is weighed and measured for height.
3. Vision, both near and far, is tested.
4. The right ear and right side of head and neck are inspected. While this is being done the hearing on that side is estimated by a question in a low voice.
5. This procedure is repeated on the left side.
6. The face is inspected; the condition of the eyes is noted by lifting and depressing the lids; the nares, the mouth, and teeth, then also the throat and the anterior surface of the neck, are observed. The worker is requested to remove all clothes from the waist up.
7. The chest is inspected, and the condition of the heart and lungs estimated by percussion and auscultation.
8. The abdomen is inspected and the condition of the organs estimated by palpation and percussion.
9. The back is inspected and the posterior aspects of the lungs estimated by percussion and auscultation.
10. The spine is palpated and flexed.

The worker is requested to loosen his trousers and undergarments and let them fall around the ankles.

11. The external genital organs and inguinal regions are inspected and palpated.
12. The sacro-iliae articulations are examined and the anal region inspected.
13. All extremities are inspected, mobility of joints and condition of blood vessels being especially observed.

The worker is now requested to draw up his underclothing and trousers. Next he is directed to sit down and take off his shoes and socks.

14. The ankles and feet are inspected. If there is any doubt about the arches, impressions are taken.

15. Blood pressure readings are taken (optional).
16. A specimen of urine is obtained (optional).

The worker is now dismissed. During the inspection as defects appear, the physician is expected to inform the worker of their presence and to give him such advice as may seem wise, an interpreter being used when needed. Special features are emphasized immediately before departure and further advice given if necessary to enable the worker to do his work without hazard to health.

Benefits to Worker Test of Adequacy

In commenting upon this procedure, it may be said that inspections by this method may be made superficial or thorough, as desired, with minimum expenditure of time and effort. The inspection moves easily, without offense, from the exposed parts of the body to those the blunt exposure of which can prove embarrassing to the worker. It meets the requirements for job placement, and prepares the way for subsequent examinations essential to the supervision of health. When ac-

FORM 173

REPORT OF PHYSICAL EXAMINATION

THE NATIONAL MALLEABLE CASTINGS CO., TOLEDO, OHIO

DATE

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accompanied by appropriate advice, when the information obtained is properly used in assignments to work, and when those found defective are afterwards helped through medical and social service and continued advice, then the inspection contributes to the health, earning power, and peace of mind of the workers, and its scope may be regarded as being adequate.

In some establishments applicants for work enter the examining room stripped. If this can be done without offense, the physician's time may be thereby economized to the extent consumed in undressing and redressing. This is an advantage where large numbers are hired, but the tendency of physicians, speeding from one to another, is to slur the educational feature, which is of exceeding importance. On the contrary, if the doctor is forced to wait, he has the opportunity to discuss with the workers their conditions and, therefore, has no real excuse for not doing so.

That which has been said applies to the inspection of men. The inspection of women is quite another matter and, although the same general plan may be followed, considerable tact and discretion must be used. The thoroughness of the inspection must frequently be dictated by discretion, and it is wisdom always to have a woman nurse present. Good judgment really indicates that women should be inspected by women physicians.

Points Required in Record Forms

For the further exemplification of the author's conception of the scope of the inspection, a form¹ which has been devised for recording the information is presented, as illustrated. This form has been evolved from experience in the physical inspection of school children, the inspection and examination of applicants for employment and from studies during the war of industrial medical departments and the forms used in sixty-four of them. The form will not be described as, with the exception of the code at the top, it is self-explanatory. The code, it may be said parenthetically, is a part of a plan in use at the Toledo plant of the National Malleable Castings Company for determining the kind of operation for which an applicant for work is physically fitted. A description of this plan and an explanation of the code is not appropriate to this discussion. The principal advantages of the form are as follows: (1) it provides for specific mention of conditions most usually found providing also for the recording of unusual conditions; (2) it records finding practically in the order of inspection and indi-

cates at a glance the side of the body involved; (3) it permits recording with a minimum of clerical effort; (4) it permits tabulations and compilation of reports with a minimum of medical knowledge and clerical effort; (5) it permits diagrammatic representations of abnormalities and amplified description of special features; (6) it permits the recording of three subsequent inspections in direct comparison with the original; and (7) it has a wide range of adaptability in the recording of information secured by means of any of the various grades of examination, except the special examination.

Looking Toward Standardization

In the use of this form, the physician may himself register his observations or, better, he may memorize the numbers and indicate to his clerk the findings by their number. The latter method is of course quicker and easier for the doctor.

It will be said in closing that neither the procedure for physical inspection, as outlined, nor the form is regarded as final or conclusive, or in any sense a finished product. Minor changes and additions are constantly being made in both as experience indicates their need. They have been presented primarily for the purpose of exemplifying the author's conception of the scope of the physical examination in industry. It is hoped, however, that their presentation may stimulate this organization to take further steps toward the standardization of the examination and the form, and a promulgation of a better conception of the relation of the examination to industrial medicine and of that to the needs of industry and labor.

INDUSTRIAL ACCIDENTS AND HYGIENE

In the July issue of the *Monthly Labor Review* appears an article by Alice Hamilton, M.D., discussing occupational diseases in Pennsylvania. She takes up in order industrial poisoning from lead, carbon, monoxid, brass, mercury, arsenic, various industrial gases, and coal tar products. There is also a discussion of diseases caused by physical agents in the textile industry, in coal mining, and the importance of anthrax as an industrial disease.

There is no compensation for occupational diseases in Pennsylvania. While in this respect some other states are more fortunate, the advantage is somewhat lessened by the difficulty of actually proving the occupation to be responsible.

"It is true," says Doctor Hamilton, "that we are learning each year more about the action of various poisons on the human body and also of such indirect factors in the cause of disease as fatigue, heat, and humidity; nevertheless, we can connect occupational disease only in a small number of cases with that degree of positiveness that would be required under the law. . . . No law, no matter how wide its application, would ever cover all cases of occupational diseases."

¹. One side only of this form is reproduced on the opposite page. Diagrams of the human figure with numbered sections are printed on reverse side of original form.

MALINGERING—INVOLVING THE PROBLEM OF GETTING SICK OR INJURED EMPLOYEES BACK TO WORK

JUDSON C. FISHER, M.D., SPECIALIST IN INDUSTRIAL INSURANCE, NEW YORK CITY*

MALINGERING may be defined as the feigning of illness or injury, or as the exaggeration of symptoms. Some comparative zoologists after studying the animal kingdom, say that malingering is a form of self preservation—an offshoot of fear. In the animals it is called instinct. If one stops to analyze the cases of malingering in respect to nationality, physiognomy, and mentality, there are evidences that this "instinct" is a real thing, and a trait which supports Darwin's theory of evolution. History and literature have recognized malingerers since the beginning of the world. The earliest instance known is recorded in Genesis¹ when Rachel, in 1056 B. C., maledgered in order to secrete the stolen idols of Laban. What boy in our day has not maledgered in order to attend the ball game, carry water for the elephants, go fishing, or escape an unprepared lesson? While the problem is old, yet in these fast moving days of industrial activity there are new aspects which must be considered. The various methods of malingering, the tests for its detection, and the training of the doctors for this special branch are material for later papers.

That admirable legislation known as the Workmen's Compensation Act, now operative in the majority of the states, has given us opportunity to study closely the injured employee, and, where occupational diseases are included, has stimulated interest in the sick employee.

Malingeringers in the Minority

In justice to workmen in general, I believe malingeringers to be in the minority. The ideas brought out in this paper are for the purpose of detecting and curing an ulcer which causes the innocent to suffer and by its cure will cause the honestly disabled employee to receive all the honor, sympathy, and consideration due him.

The malingering employees may be roughly

SOCIETY THE MALINGERER'S PREY

Society is conceived by the malingerer to owe him something. His mental quirk exaggerates his wrongs, minimizes the rights of others, and makes him a fit subject for bad suggestion and for vicious leadership.

The real remedy is in the physical examination which eliminates the mentally unfit, and in educating the workman to a sense of his responsibility to industry, and to a proper spirit of loyalty.

The present safeguard is to be found in an administration of medical service that will check the fraudulent claim at the outset, and provide such penalties as will minimize the abuse.

classed as: (1) dishonest employees who say little, and (2) exaggerating employees who are less experienced and therefore vulnerable to make the most of their injuries.

The dishonest employees or "fakirs" are those who have a slight or no accident or illness. They report an injury and become immediately disabled. The doctor finds little or nothing on physical examination, but, willing to be always

fair, gives the employee the benefit of the doubt and sends him home. His disability becomes total; on account of "pain," he says he cannot work. If he has a slight cold he reports sick and says the pain in his chest keeps him from work. Physical examination shows no evidence of illness.

The Urge to Malingering

Where settlements are permitted, as among stevedores under the Admiralty Law, foreign labor is urged and often assisted to malinger by the "runner" or "shysters." Within the last three months I have seen the following malingering cases of this class:

1. B. C., age 38, Italian, married. Was lightly hit by a draft of boxes and was supposed to have injured his left shoulder. He went to a doctor, who treated him every day. Physical examination three weeks from date of accident for the purpose of determining the extent of disability showed marked inability to raise the left arm and, upon palpation, a very tender shoulder joint. After various tests no signs of fracture or changes in or about the joints were discovered. There was a mottled blue area of skin about 4 inches in circumference over the shoulder. The "bruises" were superficial, and not deep. Investigation confirmed the suspicion that these "bruises" were caused by some one sucking the skin of the shoulder, and making what the boys call "fox bite." Had the man sustained a real injury, the settlement would have been in proportion and the "runner" would have had a larger fee. In this case the employee was dishonest and with the hope for greater benefits the "runner" tried to assist him to be more dishonest.

* Read before the Eighth Annual Congress of the National Safety Council, Cleveland, October 1-4, 1919.

¹ Book of Genesis, xxxi, 86.

2. P. Q., age 46, Hebrew, married. Claimed to be walking along a warehouse when he slipped on a banana peel. In trying to catch himself he bent backward and hit his head and the middle of his back upon some crates standing near. No one saw the accident, but a doctor strapped his back. When examined there was a blistered area of skin across the small of the back which proved to have been made by a hot poker in order to fool the examining doctor. While his back was being examined, his clothes were dropped down about his ankles and his hat placed upon the floor. During the examination he claimed inability to bend forward. Upon being left alone he was seen, through a peek slit from another room, to bend over, pull up his clothes, and pick up his hat.

Flagrant Dishonesty Employed

Flagrant malingering, when the claimant is dishonest, unassisted, is seen as in the following cases:

1. M. N., German, age 22, draughtsman. Was injured in Niagara Falls. He claimed that while lifting one end of a drawing board he felt pain in both groins. Physical examination showed a large indirect inguinal hernia on both sides. He claimed never to have had a lump on either side before. He insisted upon operation by his New York family doctor, and not by the insurance company's doctor. His doctor used carbolic acid in mistake for novococain, burned the skin from the boy's navel to his knees and he became sterile by the contraction of the scar tissue over the cords. Investigation showed that the drawing board weighed twelve pounds and his end, therefore, weighed six pounds. The condition could not have been traumatic hernia. This malingering caused loss of services and money to the employer, and much suffering with permanent disability for the malingerer.
2. M. M. Was led in by a young girl. He stated he was 51, married, family in Italy, and that he had been burned in both eyes by live steam. He claimed to be able to distinguish light and dark only. External physical examination seemed to bear this out except for the fact that his eyes quickly followed the dropping of a ring to where it rolled. While he was faced toward the window his coat was put on another chair, his hat hung in a darkened corner of the room, and his glasses changed to another position of the desk and partially hid by a paper. His ability and agility in finding them while talking about compensation led to the rejection of his claim.
3. A young man, formerly an acrobat, age 28, married. Sprained his ankles while carrying a heavy chain. He returned to work in three weeks; compensation was paid and the case evidently closed. He apparently did the same and heavier work for nine months. Then he laid off and asked for a re-hearing. Physical examination was negative, x-ray was negative, yet he held his feet almost rigid. Several doctors, including the chief surgeon of an accident board, could find no cause for his complaint that "the pain in his ankles was so bad he couldn't work." I couldn't elicit the usual evidences of pain, and finally had him kneel in a chair, facing the back. His feet hung rigidly. Tapping the Achilles tendons caused an unexpected free extension of the feet. This movement was not painful. This was one of

the very few cases where I felt justified in testifying "this man has no pain." Despite the negative evidence the board awarded compensation. Leaving the building the employee said to me, "I guess I didn't talk up to them enough. S. told me that he talked up and was given \$3,000 and I got less than \$1,000." After the settlement he had no further need for his cane.

The second class is composed of employees who have been ill or injured so that the evidences are present upon physical examination, and yet who claim to be unable to return to work. In these cases the physical examination shows exaggeration of symptoms. The men decide not to return to work until they are as "fit as the day they quit." This class may be divided into (1) those who are in the age group 25 to 40, and (2) those who are in the age group 55 to 75.

The age group from 25 to 40 contains many malingererers who desire time off because, when idle, they make more money. Such a case is that of J. C., as follows:

J. C. belongs to several lodges or mutual benefit societies, whereby the total weekly benefits, including compensation, exceed the average weekly wage. His wife may also be working and adding her mite. In these days of high wages and comparatively low compensation benefits this class has fallen off in numbers, but in ordinary times these employees we always have with us. The men find it much easier to have free medical attention, to have high weekly benefits, and to be able to sit around and talk or read, than to have to work in order to earn the amount sufficient for their needs. This is especially so when the earning power is less productive than the benefits.

Age Groups of Claimants

The age group from 55 to 75 years—the winter season of life—usually contains men who own a little property purchased with their savings and have rent practically free. They have children who are married, and any at home usually contribute, so that the income from compensation boards, lodges, and members of the family, with an occasional gratuity from the employer, is more than sufficient to feed and clothe the family. These men are satisfied to sit around and talk and do the chores; but when it comes to work they claim inability of all sorts. A good example of this class resides in the city of Buffalo. His history is as follows:

K. K., age 62, married, no children. While working for his brother as a carpenter, fell a distance of ten feet and landed on both heels. He fractured both heel bones. The injuries were promptly and properly treated. The slight swelling of the legs, common to inactive men of his age, appeared occasionally, and there was a slight deformity due to formation of callus in the left heel. He was fitted with proper arch supports and shoes, baked and massaged, and, after a period of total disability for fifty-two weeks, was told to return to work. The brother-employer was approached concerning re-employment of K. K. He said he thought K. K. should rest and thereby prolonged

the disability because K. K. would "work for nobody but his brother." K. K. claimed pain in the muscles of his leg after standing a while, and pain in the bones of his feet at night. He refused to try to do anything. Five years after the accident the examination revealed nothing more than the usual results of this type of fracture. Investigation proved that he owned his home, did the chores, cut the grass, cared for his garden, hoed the potatoes, and yet exaggerated his symptoms so that the insurance carrier has paid him \$15 per week for five years, with the prospect of paying him as long as he lives and the chance of supporting the widow afterwards.

Statistics show that more employees malinger who are injured than those who are ill. This is probably due to the legal liability feature; therefore, we will deal with our problem of returning the employee to work with a tendency toward the accident feature. Necessarily this will involve problems of workingmen's compensation administration.

Returning a Malingerer to Work

The problem of returning the injured or sick malingerer should be attacked as the medical profession attacks diseases. The premise is that the disease is present. To treat it properly there must be a knowledge of the causes, the symptoms and signs of the illness itself, and the cure by (1) preventive measures, so that others will not be afflicted, and (2) the treatment of the diseased one by eradication of the symptoms.

As to the premise there is no argument. No sane person doubts its existence. The causes of malingerer are many, and because of their importance in treatment they should be mentioned in order.

Starting with the malingerer himself, we must consider him as to his age, sex, education, and mentality. Among foreign elements, especially the Latin races, all ages tend to exaggerate and malinger. The American youth, except in rare instances, wants to be back at work as soon as possible. His future is before him. About fifty years of age man begins to consider work as a means of existence and takes pride in his past achievements. He begins to feel that society owes him a rest and a pension, and exaggerates accordingly. Some older men, with the pride of years of service behind them, will drag themselves to work if possible that their record may not be broken. Men with such spirit are the real heroes of labor. Unfortunately, human nature seeks rest as the sun of life sinks.

The influx of women workers during the world war is too recent for reliable statistics. It would seem, however, that their ambition and ability to endure would result in far less malingerer in proportion than among the male sex.

The less educated, the more lazy. Conversely,

as the mind improves its status so does the malingerer become lessened. There seems to arise an ambition which refuses to be downed by ill luck. Therefore, lack of education is recognized as a cause of malingerer.

The mental attitude of the employee is interesting on account of the motives discovered. (1) He may be revengeful and feel that his employer owes him more than the law provides, or that the prolongation of disability will tend to get even with the employer for some real or fancied wrongs. (2) He may be ambitious for attention, sympathy, and alms. All clinics have those who make regular rounds year after year. The hospital charity organization societies, churches, lodges, and various benevolent societies know this type well. (3) He may be defective mentally. That type includes the fanatics, the convulsionists, the hystericals, imitators, and manic-depressive cases.

Employers as Extremists

Employers may be divided into two classes for our purpose. One class is composed of those who are too generous. They pay full wages for time lost irrespective of compensation laws. In some few cases this would be extremely gracious and well deserved, but in the vast majority of cases the temptation of nature to prolong disability is too strong. The other class is just as close and indifferent as possible. While I was trying to induce a president of a large concern to introduce a sanitary lunch room, hospital, and first aid organization, he said: "Why should I try to make it pleasant and safe for those fellows aside from my question of rate? The whole 5,000 would walk out tomorrow and not think about me if an agitator trumped up some fancied wrong."

Had he paid more attention to the comforts of the men, organized safety first units, taken the trouble to learn the names of a few men, dropped a smile or word of commendation here and there, or built up a brotherhood among the employees, there would have been little economic loss through malingerer. Personal interest, properly exercised, breeds loyalty among employees that even instinct can't abuse very much. Keeping the employees informed as to statistics of work in past years for comparison, and accident frequency with loss in terms of sick or injured days, will go far to arouse an indomitable pride in the workmen's heart. A lack of interest on the part of the employer means a lack of proper follow-up methods, and does much to favor malingerer.

Industrial accident boards foster malingerer by: (1) Having no facilities for quick hearings in

malingering cases as soon as detected. In some states it takes from two to six weeks to have a case appear on the calendar after application for hearing has been made. If detected, the malingerer knows he will be given consideration at least to the date of the hearings, giving him added weeks of benefits, which he otherwise would not receive.

(2) Urging legislation, raising the amount of compensation indiscriminately. The man with a sore finger can do work of some kind while the man with a broken leg can not get out to look for it. The helplessness of the latter requires greater expenditures and should have a higher rate. In other words, a scale depending upon the degree of disability should be chosen. The simpler injury, or the undue prolongation of an accident in like proportion calls for less in benefits. The most worthy should be entitled to the maximum benefits. Malingering is fostered by high benefits.

(3) Mixing politics and sentiment with business. Very few who appear before various state boards have failed to see an elaborate staging of a case with relatives for supporting parts in order to sway the Board. The sympathy thus aroused may cause a ruling not upheld by the higher courts. Union cards and political affiliations are worked to the limit, because the Law says that the Board shall be the sole judge of fact. With proper "introductions" the malingerer is confident that the Board may be generous.

(4) Failure to prosecute perjurers or malingerers when so proved. This freedom from prosecution is a source of comfort to the malingerer. What has he to lose?

(5) Failure to have a competent medical member of the Commission, whose duty would be to arbitrate all medical cases. He would weigh the opinion of the chief medical examiner against the testimony of the insurance company's doctor, or the claimant's doctor. Malingeringers could not then trust to the ignorance of a lay mind concerning the importance of the medical problems involved, or the symptoms presented.

Medical Profession and Malingering

The medical profession, sad to relate, contributes much toward malingering.

(1) Family doctors depend upon the families and their friends for their practice. They feel they can't afford to get on the wrong side of any fence, consequently the malingerer preys on them for certificates of extended disability which the doctor can later usually back up with some kind of opinion.

(2) Lodge and society doctors are in the same class and their reappointment the following year depends on the vote of the lodge. These doctors rarely perjure themselves for a few dollars, but they will stretch the truth. Malingeringers get certificates with comparative ease from such men.

(3) The shyster doctor, as well as lawyer, we have with us. To such the truth means nothing and they trust to their personality to convince lay board members of a fearful and wonderful condition in the claimant. This type of doctor has his "price."

(4) Incompetent doctors, treating all manner of eases, prolong and sometimes provoke disability unduly, and discourage the injured or sick. Thus they encourage malingering.

Combination with "Third Party"

The so-called friendly enemy or runner who learns a few symptoms of disability and how to produce them artificially in some cases. This party, plus a natural malingerer, makes a hard combination to beat. The runner is after his percentage and the higher the cost to the employer, the greater his profits.

The detection and methods of detection of the signs and symptoms of malingering will be left to the industrial surgeon or specialist in malingering. Suffice to say that the diseases having been proved present, we next consider the treatment.

Preventive or Prophylactic Treatment

This consists chiefly in correcting or removing the causes.

As for the employee; pension the faithful employees before they are added to the industrial scrap heap; stimulate pride in men to outdo the women in stick-to-it-iveness. Educate them at least to an awakening interest; determine the mental attitude by physical and social examination before employment, and eliminate the mentally unfit. The moral and physical hazard of those employees in daily contact would be greatly increased if defectives were allowed on duty.

The employer should be kind, gentle, courteous, and jolly, but firm and not unwise generous. He should make the employees feel it is their business, also, and each man is a spoke in the wheel which will not run smoothly if a spoke is missing. He should advocate employees' clubs, comforts, and organizations, and encourage them with his occasional personal supervision.

The industrial boards should have one-day emergency calendars presided over by a commissioner who is a competent surgeon and a specialist in malingering; a fair scale of benefits so that the worthy receive their due; a high sense

of honor as custodians of hundreds of thousands of dollars of employers' money; an understanding that politics and sentiment must be minimized in relation to business and the law, and prosecuting or assisting the district attorney to prosecute, all malingeringers and perjurors so proved.

The medical profession will from now on contain trained industrial surgeons. Progressive colleges are beginning the courses. These should supplant the family, lodge, society, shyster, or incompetent doctor. These surgeons should be supported in industry, but should not be subservient to it.

The board and employers should refuse to discuss a case promoted by a runner or shyster lawyer. These vultures prey upon the laborer's ignorance of his rights under the law, and demand a percentage of that to which the law says he is entitled. There is no need for the runner, and he should be eliminated.

Active Treatment of Malingering

The problem resolves itself into the fact that these employees are lingering and loitering on the threshold of industry. How best to encourage their voluntary return? At the beginning of employment, the application blank should have these questions on it:

- (1) Have you had any previous accidents? Explain.
- (2) Have you had any previous illnesses? Explain.
- (3) Are you now in good health?

A malingerer is not necessarily a *good* liar, for a good liar remembers his previous story. There should be a careful physical examination before employment. Defects can be noted so that minor injuries cannot be amplified. Accidents or illnesses should be reported by some one within twelve to twenty-four hours after occurrence if they are to be considered. Employers should be protected by the law in this. A physician should make an immediate examination and control the case. Under such a procedure a smashed finger at home can not be charged to industry; a gonorrhreal joint can not be referred to a strain two weeks old, lumbago can not be called a sprain from work. Of course when particles in the eye give trouble next day, or infection sets in three days after a scratch there are definite signs of presumptive injury while at work.

Prevent by Proper Organization

The organization should provide a trained industrial surgeon who has specialized in malingering. He should have a pleasant and forceful manner, be a business man, and should be well read. He must have a convincing manner on the stand and have tact. He should have assistants, as

many as necessary, to treat all injured men immediately upon report of accident or illness, and to make thorough examinations before employment, and at any time it may be necessary.

Nurses are required who can pleasantly jolly a malingerer and, if possible, shame him into going back to work.

One or more social service nurses, male or female, are needed to check up and investigate any suspicious or questionable testimony. These nurses should have a claim training so as to know a few details which they could attend to when necessary.

System to Lessen Malingering

The following system to lessen malingering could be instituted. As soon as an employee reports ill or injured he has prompt attention by a doctor. The doctor's report, estimate of disability, and history of the case seen the previous day, is filed every morning. The employment card is attached to his history and physical examination card and becomes part of it. These cards or files go to a doctor for comparison. If the case looks legitimate, the treatment continues until disability from that illness or injury ceases. The file then is placed back in the filing system and the case closed. If the case looks questionable the facts are investigated by the social service department for inquiry and recommendation, and action taken accordingly.

If the claimant later tries to re-open his case, claiming all sorts of symptoms, he can be confronted with his previous well kept record.

If disability lasts over four weeks the case automatically goes out of the assistant's hands until the chief surgeon shall have made an examination and report. The chief's word is final—the man goes to work or receives further treatment, general, operative, or reconstructive. This gives also the advantage of the chief surgeon being able to watch the work of his assistants. At any time an employee is thought to be malingering the report should be made confidentially to the chief surgeon.

The scheme may be expanded into the realm of state medicine. It may also grow into a clearing house for information concerning dishonest employees, such as life, accident, and health companies support. When an employee is dishonest to the point of malingering, he should be known in order to prevent the honest employees being made to suffer by his actions. This would reduce the number of so-called "traumatic hernias" alone so that the saving in this one type of claims would pay for the bureau.

This scheme is also applicable to any group of

employers or insurance carriers in any one city where the individual system might be too expensive for any one employer.

Penalties Should Be Provided

A firm hand by the industrial boards in dealing with malingeringers is essential. It matters not whether benefits are cut off on the date the employee should have shown his good will and attempted to resume some work upon the physician's advice, or the knowledge that detection of malingering will certainly be punished by the boards or courts—the employee who is faking will fear the consequences. Fear goes a great way to keep people straight who otherwise might be intentional malingeringers. This fraud is the meanest of all and should be severely dealt with.

The Group of Diagnosticians

This group would include a well paid medical commissioner, skilled in industrial medicine and surgery and in the detection of malingering, and well paid chief medical examiners.

Employees may have their own opinions, but they cannot seem to learn that after certain disabilities working will do more for them than medicines or treatment in hastening a cure.

The difference between the patient visiting his own doctor and being examined by the commission's expert is that in the former case the patient seeks advice, while in the latter case the patient squeezes symptoms to fit the condition. The former doctor is perhaps biased. The expert is unbiased and, while giving the employee the benefit of the doubt, he is an administrator of justice to all, especially that great class of honest employees who say, "I don't want anything for myself. I want a good body and to get back on the job."

The expert should be acquainted with industrial conditions so that his judgment as to a finger injury would be fair to a tailor or watchmaker, while the same injury would be less disabling to a foreman or driver, and the return-to-work order should accordingly be influenced.

The expert should study the individual and know character. He should know when to agree with dishonest complaints and when not to agree.

He should have a fair knowledge of decisions of state boards and courts in various types of cases, as his questions and the answers thereto may prove of great value to the commission in legally interpreting a malingerer's statement.

Finally, he should have a thorough knowledge of pathology. This is essential to account for many of the symptoms alleged by a malingerer. It is of untold value in the hundreds of tests to check malingeringers. That is something of which

the malingerer knows nothing. This will stop the testimony of unscrupulous doctors concerning a wonderful pathological condition, invented in the hope that the lay members of the board will give the patient the benefits.

A Summary of Conclusions

In attempting to recognize the disease, investigate the causes, and treat the condition, there has been one point in view—that of returning the sick or injured employees who tend to malingering to work in the shortest time consistent with good recovery. This saves an economic loss to the employer and protects the honestly disabled employee who, by reason of his honesty, should profit in proportion as the malingerer should suffer. The American spirit requires justice for all.

Stress has been laid on well trained industrial surgeons. This is because, in my opinion, few mistakes could be more serious or do more real harms than to stigmatize an honest man as a malingerer. It is possible by proper methods to prove malingering. At the point of doubt the medical commissioner is essential, and his opinion should prevail on all medical questions. A number of malingeringers get surprisingly well before they will submit to be examined by the chief surgeon or medical commissioner.

The malingeringers cause the medical profession making impartial examinations to view any case with suspicion until proved innocent. If we can minimize the number of malingeringers, we shall have done much for the honest sufferer. We shall also save the toiler from moral degradation which follows misspent time and unearned income. The detection of malingering is a highly specialized branch of medicine, for by it society pays its just debts, fraudulent claims against innocent parties are prevented, and industry receives back the men as useful members instead of their being leeches on society.

THE RELATION OF H. C. L. TO DISEASE

A study of economic conditions in relation to disease and their responsibility for certain diseases has been made by Louis I. Harris, M.D., director of the Bureau of Preventable Diseases, Department of Health, City of New York, for the purpose of determining the nature of medical treatment necessary and to stimulate the development of social, economic, and legislative remedies. The economic, social, and domestic difficulties which may surround a patient should be understood by both the physician and the public health nurse, he says, in order that remedies or treatment which he may be able to secure may be prescribed, or means for procuring them be arranged for. In gathering the data, which has been compiled in an article "Some Medical Aspects of the High Cost of Living," Doctor Harris was assisted by trained workers.

INDUSTRIAL HEALTH HAZARDS

BY CHARLES A. LAUFFER, M.D., MEDICAL DIRECTOR, RELIEF DEPARTMENT, WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, EAST PITTSBURGH, PA.*

THE human dynamo generates a fixed quota of energy. If speeded up, it stands a determinable over-load with immunity; if given rest periods, kept in repair, and properly sustained, the human dynamo will last three score years and ten, probably longer. The over-loaded dynamo develops heat, in consequence of which wear and tear are greatly accelerated; if temperature readings show that the dynamo heats up too much, an early breakdown can be definitely predicted. The same applies to the human dynamo in which physical defects and psychic maladjustments, as well as speeding up, over-loading, and shortened rest periods, develop "heat," known as fatigue.

Modern industrial developments, collecting vast multitudes of men and women in industrial establishments, bring to the forefront the problem of health hazards. The vast exodus from rural to urban life during the past generation, forcing into indoor occupation individuals whose ancestors for generations lived out of doors, has further emphasized the problem of health hazards.

A study of these problems is vital to the employee; health, long life, and happiness are involved. It is fundamental to the employer; involving increased production, diminished labor turnover, contented ranks of healthy, happy, veteran employees,—all tending to bring increased profits.

The employee asks for himself and his sons: Is it a safe industry in which to seek employment? Is there any special liability of incurring a trade disease? Or of suffering early impairment in health? In short, what are the health hazards of this and that industry?

The industrial health hazards of the employees may be grouped as arising from: (1) poisons, dusts, fumes, gases; (2) heat, humidity, ventilation; (3) lighting; (4) crowding; (5) fire peril; (6) association with diseased employees.

ULTIMATE CAUSES OF DISEASE

Physical examination, by whatever agency, is a necessity. Proper placement requires the truth about defects. The truth, concealed, works the greatest hazard to the prospective employee.

The difficulty of separating purely industrial factors from those of outside agencies, or hereditary tendencies, makes it necessary to coordinate all health work, and perhaps makes desirable a health chart, certifying the health condition of all employees.

Compensation for disability, if just to all parties, implies a fair consideration of all causes of disease.

The Harvard chart gives a readily accessible grouping of the industrial poisons; a consideration of all of them would be out of place in this connection.

Lead, arsenic, and mercury cause definite toxic effects, when absorbed by workers in these metals. The most used poison is lead. Not every employee who handles a paint brush, however, gets lead colic. Some paints are innocent of lead; yet em-

ployees, who have never touched lead, will bring in diagnoses of "lead poisoning," merely because an attending physician knows they are painters. Lead storage in the tissues may ensue when lead is carelessly handled, yet lead poisoning is practically unknown in large plants handling hundreds of tons of lead every year. The extent of industrial lead poisoning, we know, is much less than some reports would have us believe. Employees who cannot be taught to wash their hands before eating, and who never clean their finger nails nor care for their teeth, are particularly liable to lead poisoning. Lead cannot be eaten with immunity, within or without the industries, but with individual cooperation, plus careful industrial supervision, the lead hazard can be mitigated. Precautions in handling lead reduce, almost remove, the health hazard from this source. Individuals who have once developed toxic lead symptoms should be given other employment, as the poison is cumulative and is never entirely eliminated; hence relapses readily occur, making permanent transfers to other lines of work necessary.

Industrial Dermatoses

Persons having a tendency to eczema or furunculosis may develop a skin rash from the solvents employed in removing varnish, shellac, and various insulation dope. Cutting oils, recovered by centrifuge methods, provoke skin infections.

*Read before the Eighth Annual Safety Congress, National Safety Council, Cleveland, Ohio, October 1-4, 1919.

Forced filtration through successive layers of filter paper removes minute metallic spicules, and filters out bacterial flora that affect the skin. Cutting compounds are often culture media for pathogenic bacteria, and may require sterilization by heat, chemical, and filtration methods. Minute burns from flying hot chips; abrasions by metallic spicules in dirty cotton waste used in rubbing hands and arms, rough scrub-brushes, or caustic soaps, may provoke such dermatitis.

Every industry has its own problem or succession of problems in this line. Persons manifesting such susceptibility should be transferred to other lines of work. Some individuals can work in chemicals for months without developing trade dermatoses, while others develop such trouble quickly. When 150 employees are subjected to the identical exposure, and only three develop industrial dermatoses, the factor of personal susceptibility is suggested. Attention to the toilet,—thorough, careful cleansing of the skin,—tends to reduce industrial dermatoses.

Dusts, Fumes, and Gases

Dusts and fumes are drawn out at their source, in the well equipped modern factory, so that the factory atmosphere is, or can be made, relatively clean. There are justifiable grounds for pride where a wholesome factory atmosphere is maintained. The competition between factories to make working conditions the best possible has not yet been over-worked, and can be promoted to the mutual advantage of both employee and employer. It is up to the initiative of employers, cooperating with architects, ventilating, heating, and lighting engineers, and employees' committees, to make working conditions safe from the health standpoint.

Pulmonary tuberculosis should be mentioned in its relation to dust and fumes. Dusts in themselves are not infectious. Dusty air is not salubrious but with the dust evil minimized, as in modern industries, there are few occupations that can be condemned as unfit for healthy men.

We are told that guinea pigs kept in cement mills develop no calcicosis, and employees seldom do. While the controversy over cement dust still rages, its dangers are less excessive than some have imagined.

The dust menace in other trades is, in comparison, relatively negligible. Coal miners develop more or less anthracosis; iron workers may develop siderosis. Marble cutters formerly developed calcicosis, which health hazard is now much reduced by suction devices for the removal of dust at its source. The inhalation of foreign particles, such as coal, iron, stone, textile fibers,

animal hairs and furs, grain dust, gives rise to pigmentation of the lungs. This pigmentation in itself is of no consequence and everybody has it to some extent.

Dusts are mostly filtered out in the nose; if the dusts reach the bronchial tubes, they are caught in the bronchial cellular cilia and coughed up, being expectorated with the bronchial secretions. It is contended that none of the dust reaches the alveoli. Particles that reach the peribronchial lymph nodes, and the mediastinal lymph nodes, penetrate through lymph channels from the bronchia.

Pigmentation Plus Infection

Pulmonary pigmentation and lymph node infiltration are not dangerous until tubercle bacilli have been implanted. Where has this or that victim of pulmonary tuberculosis acquired his disease? There is no definite period of incubation for pulmonary tuberculosis. So much time elapses between the exposure to the tuberculosis infection and the frank incidence of the disease that the real source of infection may have passed unobserved. The tuberculous area can be walled off for many years, lying dormant all that time, but finally a dissemination may occur from the old focus of infection. Some observers go as far as to say that the primary tuberculous invasion occurs before the fifteenth year, before tissue immunity is established, and that the tuberculous manifestations of later life are but recurrences of the earlier tuberculosis.

A survey of pulmonary tuberculosis in a textile industry in which dust inhalation was the alleged cause of the disease demonstrated that 85 per cent of the cases investigated showed a tuberculous near relative, or other immediate household source of infection. The remaining 15 per cent had a more remote source of tubercle bacilli infection, not revealed in this casual survey. The modern consensus of opinion has declared organic dust to be harmless; there is consequently no tuberculosis hazard from the textile industries. A study of pulmonary tuberculosis incidence on the basis of occupation, as afforded by the great sanatoriums at Cresson, Mount Alto, and Hamburg, Pennsylvania, conclusively demonstrates that no occupation is exempt. The great white plague can be fastened on no single industry, nor group of industries.

Recruits for Tuberculosis Army

The classes of employees that recruit the tuberculosis army are chiefly those who have relapses of old tuberculosis; those with tuberculous wives; those living in houses infected with tubercle ba-

elli; those who have in other ways been exposed to the insidious, slowly acting infection.

Association at work or anywhere else with persons having active pulmonary tuberculosis is a menace to health. Non-tuberculous employees should be spared the hazard incident to working near employees who are coughing and spitting in the active stages of pulmonary tuberculosis. Health service measures within the industries prevent their employment, and endeavor to isolate employees suffering from active pulmonary tuberculosis and other communicable diseases. As no such supervision is exerted over the home life, street cars, theaters, etc., it follows that the factory environment is relatively free from the peril of tuberculosis and other communicable diseases.

Tuberculous individuals often gravitate to industries where the jobs are light, and the work within their ability. In the quiescent stage of their disease, these men should be employed. Moreover, many employees work indoors who should work outdoors. The high incidence of pulmonary tuberculosis attributed to certain industries requires appreciative consideration as an industry is scarcely responsible for an injudicious choice of occupation on the part of an employee suffering from or predisposed to pulmonary tuberculosis.

Dangers of Indoor Life

Tuberculosis is a house disease; indoor life is largely responsible. It cannot be fairly classed as a trade disease. The purely industrial diseases are but a fraction of a per cent of the sum total of industrial morbidity; they are but a drop in the bucket. The preventable diseases non-industrial in source loom large in comparison. Teeth and tonsils, "coughs and colds" cause a hundred times as much sickness in the general industries as do the industrial poisons.

The segregation and isolation of persons with "colds" is considered good practice, as "colds" are "catching"; "coughs and colds," moreover, are communicated by crowding together in factories, and susceptibility to such infections is heightened by poor ventilation, drafts, overheating, neglect of humidity control. These problems of engineering successfully solved, make the factory atmosphere safe and minister to the health and comfort of all parties concerned.

The Hazard to Employers

These industrial health hazards affect employers as they relate to (1) decreased production; machines lie idle; sick employees are irregular, discouraged, and lack "pep"; (2) excessive labor

turnover, due to ill health, unfitness for jobs assigned, prevalence of epidemic and infectious disease; (3) increased accident compensation expenditures, due to sickness masquerading as injuries. Cases arise daily in which conditions are pathological, but trauma is alleged; or in which a minor trauma has provoked a prolonged period of disability, or an unusual degree of permanent impairment follows injuries, not in consequence of the gravity of the injury, but owing to intercurrent disease, or the previously impaired vitality of the traumatized individual.

The government employs only healthy men for the fighting line, whose ability to recover from wounds is 100 per cent plus. The industries necessarily employ many aged and feeble men, suffering from latent diseases and infirmities, having enfeebled powers of resistance and incurring delayed recoveries when injured. The industries are consequently entitled to sympathetic consideration in the vast economic problem evoked by injury plus sickness.

A term of disability may start as an industrial accident, the trauma being admitted, yet the period of disability is prolonged indefinitely by complicating sickness. Latent disease is activated by the trauma; or the disability is prolonged by sickness arising from other causes, or from pre-existing diseases unrelated to the trauma sustained. Fully "fifty-seven varieties" of sickness are presented as industrial accidents in entering compensation claims. Among these may be mentioned tuberculosis; syphilis—in various disguises; rheumatism,—teeth, tonsils, gonorrhea, each contributing their quota. These latent diseases, and others, are activated by trauma.

Remedial Measures Suggested

Since these health hazards face the industrial manager, what can be done about it? How can they be avoided? Measures to this end are:—

1. *Industrial Health Clinics.*—Group diagnoses; health service measures; repairing defects; reclaiming those disabled by diseases, as well as those crippled, and fitting them into selected positions in the industries; health education.
2. *Legalized releases for defects that cause abnormally long periods of accident disability.*—Hernia, varicocele, varicose veins, healed tuberculous foci in joints, lungs, etc., valvular heart defects, eye defects, amputations, etc., should be charted, and an employer should not be made financially responsible for defects and diseases arising from causes unrelated to the employment, nor for aggravations of the same.

3. *Obligatory Post Mortems.*—When the cause of death is in dispute, the report of the post mortem should terminate the controversy. So many deaths, occurring from pathological causes are reported as arising from accidental injuries received in the course of employment, that post mortems are essential, if justice is to be done all parties.
4. *Federal Health Charts.*—Transient employees lose a day in order to undergo the physical examination that precedes their employment. A Federal health chart, renewed annually, valid everywhere, would be invaluable for the transient as well as for the continuous worker who remains loyally by his employer year after year. The onus of the physical examination should be removed from the industries. Proper placement in industry requires the truth about physical defects. The truth concealed, works the greatest health hazard to the prospective employee.

An annual health inspection by the staff of a diagnostic clinic for every citizen between ages of eighteen and fifty-five could be achieved under Federal supervision. The surgeon general's office could establish in every community a Federal "Good Health" station, emphasizing diagnosis, and could recommend such remediable measures as the health maintenance of every citizen of draft age requires both for industrial service and for war. The early correction of defects is desirable; the early recognition of incipient diseases leads to successful treatment.

Annual re-examinations would constitute a splendid follow-up system to ascertain whether recommendations made as to teeth, tonsils, hernia, varicocele, diet, exercise, etc., had been followed out.

Nation-Wide Federal Health Service

Nation-wide Federal health service, devoting its energies to diagnosis, would not interfere with existing agencies for the treatment of medical and surgical cases, hence would not in any manner antagonize practitioners of medicine, existing sanatoriums and hospitals. A Federal educational propaganda for good health, however, by its recommendations could rapidly reduce the percentage of remediable defectives in the nation and so arouse public opinion as to enforce remediable measures in the incipient stages of defects and disabilities.

Federal health charts, with photographs, finger prints, and complete data of physical findings, would aid employment agents in rapidly placing men in the industries so that they would stay

placed. Health charts would not debar worthy men from the industries, but would facilitate in so placing them that their defects and morbid tendencies would militate least against them.

The proposed health charts could be the means of tabulating the availability of men for military service, hence would serve the exigencies of war preparedness, when men of draft age are again called out. They would likewise serve the industrial purposes of peace.

The day may be near, or remote, when a United States cabinet officer presides over a Department of Health; or when the Surgeon General of the Army is represented by a personnel as numerous and as widely distributed as that of the Postmaster General. Federal health charts, however, and a universal diagnostic clinic service which would make such charts possible are, however, devoutly to be desired; and, until obtained, physical examination must be conducted within the industries, as at present, in a fragmentary and incomplete manner. They should be extended if possible. If conducted with the frantic haste that too often has characterized these examinations in the past, the same indifferent valuation will adhere to this service as heretofore.

Other Health Hazards of Employees

Employees encounter health hazards apart from industrial service, that revert, affecting their industrial life. Such health hazards may be grouped as:

1. *Inherited Tendencies.*—Bad or indifferent physical and mental endowment.
2. *Family Problems.*—Unhappy home life menaces industrial safety and health.
3. *Financial Problems.*—Worry over bad investments, high cost of living, wife's or children's extravagances or other matters may induce more fatigue than the day's work.
4. *Social Life.*—The employee may belong to too many things, and, being too popular, lose too much sleep. An employee's occupation may have less to do with his health and his continued industrial efficiency than the way he spends his evenings.
5. *Housing Problcms.*—Individual houses are desirable to afford every family its own home in sewered towns with paved streets. Crowded tenements and boarding houses contribute to health impairment.
6. *Community Health.*—The acute infectious diseases encountered in the industries of any community are a reflection of the diseases then prevalent in that community. Measles, mumps, typhoid fever,

scarlet fever, influenza, grip, "colds," bronchitis, pneumonia, and smallpox are encountered. Isolated cases of these diseases, sometimes endemic, or epidemic, occurring in industrial plants are traceable to community sources of infection.

7. Neglect of Personal Hygiene.—

(a) *Neglected Teeth.*—The neglect of teeth among industrial workers is appalling. Putrescent stumps, dental abscesses, pyorrhea, and incomplete dentures are common. Money is spent more cheerfully for most everything else than for dental prophylaxis and dental repairs. The teeth constitute the first line of defense in conserving the digestion. Swallowing food swarming with myriads of bacteria from putrescent teeth causes indigestion. No man would buy a horse that has lost its teeth. "Life is digestion"; our strength and energy come from our food, yet some men are so unreasonable as to attribute their ill health and impaired strength to their work while neglecting their teeth, thus denying their bodies the rejuvenation that comes from wholesome food, thoroughly masticated, and thereby properly prepared for assimilation.

(b) *Diseased Tonsils.*—Tonsillar infections, both locally and by referred manifestations, cause much loss of time in the industries. The alleged injuries in which there are no visible nor palpable evidences of trauma, such as alleged sprained back (lumbago), alleged sprains of shoulder, elbow, wrist, ankle, as well as the several types of arthritis, rheumatism, and neuritis, have the tonsils as possible portals of entry for the infection.

(c) *The Venereal Peril.*—All three venereal diseases, in their infectious stages, should bar employees from industry. Stricture and other complications cause lost time years after the gonorrhreal infection has been forgotten. The bone injuries of old syphilites, with case reports; syphilitic leg ulcers, also masquerading as injuries; gummatous and sinuses, presenting long terms of disability, arising from slight injuries; and serious results in mild eye injuries, if recorded in detail would attest the excessive liability to injury and the poor recoveries registered by syphilitic patients in the industries. Wassermann tests, as a routine hospital measure, are in order.

(d) *Physical Defects.*—Hernia, eye

strain, etc., are known to exist, yet repair and corrective measures are postponed.

Constipation is woefully neglected. Neglect of home sanitation, ventilation, etc., the lack of a balanced diet, and deficient sleep are all common causes of disability.

Remote Causes of Deficiencies

Most men before thirty are second raters or third raters. Physical defects exist and morbid processes are implanted from early life, frequently before the industrial age. Physical examinations in the public schools are often farcical. Many remediable defects are overlooked, while those encountered are merely reported to parents who infrequently act upon such suggestions. Consequently, the industries receive multitudes of second raters, who develop into third raters. Had their defects been corrected early and had their mode of life been more hygienic they could give a better account of themselves.

An employee spends only eight or nine hours a day in industrial service. In his home, community, and social life during the other fifteen or sixteen hours of the day he likewise incurs health hazards. The superior lighting, heating, and ventilating systems installed in many modern factories make these industrial plants more hygienic from a public health standpoint than the homes, movie theaters, and churches, many of which are more crowded and worse ventilated. To be consistent, homes, boarding houses, hotels, theaters, and clubs in which employees spend more hours than in the factory should be scrutinized and inspected as industrial plants now are, in probing sources of health impairment and routes of infection from communicable diseases.

The industrial sick rate is augmented by a variety of physical defects most of which are remediable. Those that cannot be cured can be adequately relieved to enable employees to keep at work, if they so elect. A man must be reasonably healthy to be an efficient worker. A small maladjustment, a minor neglect, will sometimes lead to serious complications. An employee with a toothache whose attention is thus distracted will give more thought to his tooth than to his job. An ingrown toe nail is preventable; through neglect or improper treatment, it may cause lost time. Elementary hygiene and the proverbial "stitch in time," must be observed, if a man in industry, or out of it, is to maintain his health and efficiency.

Although there are industrial health hazards, and although the zeal in discovering and elimi-

nating them is commendable, the facts remain that purely industrial diseases are very rare in the general industries and that preventable, non-industrial ailments are the preponderating cause of sickness disability and health impairment.

Sickness and Accident Disability

The daily contact with industrial disability, both sickness and accident, brings one in touch with their intimate interrelation. Septic absorption from such foci as teeth, tonsils, prostate, accessory nasal sinuses, peribronchial lymph nodes, etc., causes much of the disability improperly labeled as injury. Patients like to be told that their occupation does not suit them, that their work disagrees with them; but they may resent it if told that their teeth need repair, that their tonsils should be removed, that correcting lenses should be worn for their failing vision, or that arch supports are required.

This leads to the question of industrial fatigue. If a man works hard enough and long enough he will naturally get tired. Industrial fatigue may not be excessive, but the fatigue from other sources combined with the industrial fatigue may prove detrimental to an employee. For a man to be fair with himself and with his job, he must ascertain to what extent his job is tiring him out, and to what extent his fatigue arises from such emotional causes, as domestic affairs, financial cares, worry, etc.; from septic absorption, as teeth, tonsils, prostate, etc.; from physical defects, as eye strain, impaired hearing, flat feet, hernia, etc.; from latent diseases, as incipient tuberculosis, etc.; from acute infections, as grip, nasal catarrh, bronchitis, etc.; from improper diet; from unhygienic home conditions; from loss of sleep; and from other potent factors that may enter into the equation in the accurate estimation of his total fatigue.

A worker who is constantly fatigued from any cause or any combination of causes will lose time now and then from sheer exhaustion. The fatigued worker is more susceptible to infectious diseases, from which he makes a retarded recovery; he becomes more stupid and, because less alert, he more readily meets with accidental injury, from which he recovers slowly since he has impaired vitality, and we have injury plus sickness to deal with.

The Industrial Clinic

There being this interrelation of sickness and accident disability, constituting the twilight zone of sickness and injury, it naturally reverts to the industrial clinic to find out the sources of fatigue, to evaluate the factors that contribute to the

fatigue total, and to facilitate the recovery of the individual in the manner indicated by the findings of the inquiry.

There arise specialties in industrial practice when an industrial diagnostic clinic is organized. Specialization is needed, employing diversified talent and training, such as required on a hospital staff. Beginnings of the industrial diagnostic clinic are observed at many places. The scope of specialties now covered are: (1) operative surgery, clean; (2) septic surgery. It is ill advised to allow the doctor who treats boils and infected wounds to care for fresh injuries, or re-dress clean cases. (3) physical diagnosis with special reference to heart and lungs; (4) x-ray service, developing into an ever larger field; (5) dental service; (6) pathologist for sputum, urine, blood, Wassermann examinations, tissue staining, vaccines, etc.; (7) oculist for injuries and diseases of the eye and optical service.

In addition to these special lines of medical and surgical service the works dispensary, as occasion demands, consults with orthopedic and general surgeons, internists, alienists, neurologists, dermatologists, oculists, ear, nose, and throat specialists, endeavoring to establish correct diagnoses, and cooperates in every legitimate way with the best available agencies for speedily restoring the disabled to health and to industry. Where the plant employs but few industrial physicians, group diagnoses, the collective findings of a diagnostic clinic, may be accessible elsewhere. The multiplication of such centers, within and without the industries, in the interest of health conservation, is much to be desired.

Community Health

The coordination of industrial and municipal health activities, as in Akron, O., offers a solution of the problem of controlling epidemic diseases. With the community health problems solved the industries will be spared the absenteeism from this cause, and the slackened production incident thereto. The works dispensary can become an out-station of the city department of health, with test tubes for throat cultures so that suspicious throats may be swabbed when the patients are sent home, and in order that no delay be encountered in getting reports on findings to attending physicians.

The control of industrial health hazards is entirely a matter of the initiative of the industrial management. Health engineering experts, consulting physicians, specializing in the reduction of health hazards, are being employed by the industries in conjunction with engineers in associated lines to reduce these hazards.

Educational effort from within the industries strives to stimulate the initiative of employees into foresightedness along health lines. To what extent the industries can enter into community activities without becoming paternalistic is a debated question which we will not discuss. Model house building enterprises, helping employees acquire their own homes, building and loan associations, banking, stores, and restaurants on the no-profit basis; clubs, social centers, playgrounds; hotels for employees; industrial and technical schools; apprentice courses with technical schooling; athletics, bands, and glee clubs are among the forms of community enterprise fostered by many of the larger industries which have the endorsement and approval of employees.

The new spirit abroad recognizes participation in industry as in the nature of a social service.

Constructive good-will—based on mutual confidence and real justice, alone can operate effectively to solve the problems to which industry gives rise. In the trinity of production, Capital, Labor, and the Community must unselfishly co-ordinate their common functions of serving one another.

There are health hazards within the industries that industrial initiative should control; within the communities that the coordination of industrial and community health service can control; and within the scope of the individual there are health hazards which require his personal initiative to combat successfully. With such coordinated efforts, the human dynamo will generate energy uninterruptedly, and the worker, secure in the enjoyment of a fair share of the rewards of toil, can live to a ripe and honored old age.

THE TREATMENT OF BURNS*

BY W. I. CLARK, JR., M.D., NORTON COMPANY, WORCESTER, MASS.

MOORHEAD,¹ writing of burns says: "Practically speaking, they should all be regarded and treated as infected wounds due to heat."

Colcord² in a most careful discussion of burns and their treatment says of a visit to a hospital where there were many burned cases: "Every burned surface was covered with pus, and the smell was disgusting. Many writers speak of the absorption of pus from suppurating burns as a frequent cause of death."

Septic Tendency of Burns

Why is it that burns tend to run a septic course? The heat which is sufficient to kill the cells of the skin layers in a third degree burn should certainly be strong enough to destroy microorganisms upon this skin, and it undoubtedly does. Thus a burn is an injury to one or more layers of the skin resulting in death of the exposed tissues, and is readily infected either direct from without or from neighboring skin.

Therefore if we can keep a burn sterile it should, after the separation of the slough, become a clean granulating wound and follow the same course as other wounds of this type.

While epithelium will grow on an infected surface its growth is slow and unsatisfactory as compared with its growth over a sterile surface.

It is exceedingly difficult to maintain sterility in a burn of any magnitude. Even with the greatest care any wound which is frequently

dressed becomes infected, and this is particularly likely to occur when a mass of dead and partially devitalized tissue is the type being treated.

In considering the treatment of a burn we have to consider two things, the treatment of the burned individual and the treatment of the local condition, the part burned.

The treatment first should be directly for the burned individual. The conditions to be combated are shock and nephritis. Secondary conditions such as fever and pulse-rise, with meningeal symptoms, vomiting, and diarrhea, and sometimes symptoms of gastric or duodenal ulcer, may appear as a result of thrombosis and toxic absorption from the local burned area. These must be met as they arise.

The order of treatment is as follows:

(1) Put the patient to bed in a warm room with hot water bags to feet.

(2) In removing the clothes, cut around burned areas, being careful not to tear the clothes from the skin and cause additional trauma and avenues for infection.

(3) Protect the burned areas thus exposed by covering with sterile towels or sheets.

(4) Give patient one-fourth grain morphin with one one-hundredth grain atropin by hypodermic. Repeat with caution if necessary.

Morphin is a stimulating narcotic and if used carefully can be employed to combat the shock without risk.

*Read before the Eighth Annual Safety Congress, National Safety Council, Cleveland, October 1-4, 1919.

1. Moorhead, John J.: Traumatic Surgery, 1917, p. 616.

2. Colcord, A. W.: International Jour. Surg., May, 1919.

(5) As soon as possible, start a Murphy drip in order to combat shock and supply fluids to the kidneys.

(6) When patient's condition begins to improve start treatment of the local burned area.

The local treatment of a burn is practically the same for first degree, second degree, and third degree burns. One or all types may occur in any case.

The first degree burn involves only the outer layer of the skin; there are no blebs following and no scarring results. The first, last, and only treatment needed in this type of burn is to powder freely with powdered stearate of zinc. When this type merges into second or third degree burns in the neighborhood the whole area would best be treated with a solution dressing. Before this is applied, however, a careful cleansing of the skin with a mild antiseptic is carried out. This must be done thoroughly but gently, especially around the burned areas. For the skin three or four inches from the burn benzene applied with cotton mops and followed by 3½ per cent tincture of iodin is probably the most satisfactory method of sterilization. As we approach the burn, ether should be substituted as it is less irritating. It is applied with cotton mops. The doctor should wear sterile gloves, use sterile instruments, and if he opens blebs should first sterilize the area with 3½ per cent tincture of iodin. Moorhead recommends puncturing the bleb aseptically at the junction between the sound and unsound skin.

After the surrounding skin has been prepared and the blebs attended to, the burned area should be covered with a suitable sterile dressing. There are three types of dressing now in use.

(1) Wet solutions of which the most favored are 1 per cent solution of picric acid and saturated solution of bicarbonate of soda.

(2) Ointments, of which the most used are boric acid and soda bicarbonate, 3 per cent. A number of special burn ointments have been developed, two of which have been so thoroughly tried out that their formulae will be given.

FIRST OINTMENT.—Used by Dr. A. W. Colecord in the treatment of 8,000 burns.

R

Carbolie Acid	'
Thymol	
Menthol	
Camphor of each gr. 5	
Ichthyol	
Balsam of Peru of each gr. 10	
Zinc Oxid	
Starch of each 1½ drachms	
Petrolatum to make one ounce. Mix well.	

Doctor Colecord uses this ointment in one-

sixth strength from the start, applied daily with aseptic precautions.

SECOND OINTMENT.—Used at La Panne,³ Belgium, during the war.

R	Vaselin	20
	Lanolin	20
	Antipyrin	60
	Boric Acid	60
	Salol	20
	Iodol or Iodoform.....	20
	Phenol	20
	Bichlorid of Mercury.....	02

This ointment gave extremely good results and was used with aseptic caution.

(3) *Third type of primary dressing.*—The third type of primary dressing is warm wax. This method started with the proprietary substance ambrine, but it has been found that the action is only mechanical so that there are a number of mixtures of paraffin and resin now on the market which are quite satisfactory. One used at the American Steel and Wire Company, and Norton Company at Worcester consists of:

Paraffin	70
White Wax	20
Resin	10

All of the combinations are dispensed in solid form and must be melted before using.

Technic of Wax Dressing

The method of applying the wax is first to dry the skin thoroughly, using an electric blower such as is used in barber shops for drying the hair. After the area to be treated is thoroughly dried, the wax is either sprayed or painted on. Spraying is wholly painless, painting nearly so. The wax must be just liquid before being applied and can best be melted down in a double boiler. When the wax is painted on, sterile cotton swabs on applicators are the best instruments to use. The warm liquid wax should be dabbed on not "painted." The wax hardens almost at once, forming a smooth coating extending over the sound skin for a short distance on all sides of the burned area. Upon this thin hardening, wax layer sterile sheet wadding which has been dipped in the wax is laid and over this another layer of sheet wadding. The whole dressing is held in place by a bandage. The advantage of using wax is the immediate covering of the burned area with a smooth sterile protecting surface with splinting of the injured part.

The wax is removed daily coming off *en bloc* with the sheet wadding. The secretions underlying it are washed off with normal saline, the area

3. Sand, Dr. René, Belgium: Personal communication.

dried with hot air, and a fresh wax dressing applied.

It seems to make little difference which method is used if the work is done carefully and absolute aseptic technic maintained throughout. Personally, the author prefers a sterile saturated solution of soda bicarbonate for the first few dressings. It is easy to apply, gives considerable relief to the patient, and requires less technic and handling of the injured area than the ointment or wax. It should be applied by saturating a piece of old sterile sheeting in the solution and wrapping this loosely about the burned area. The moisture is maintained by surrounding the wet linen with oiled silk. The dressing can be moistened from time to time by lifting a corner of the silk and carefully adding the solution.

If there is little sloughing the ointment or wax treatment can be instituted; but if much sloughing is present a moist dressing will be needed. The disadvantage of continuing the soda is that if any infection is present it is liable to flourish in the alkaline medium unless the medium is distinctly antiseptic. For this reason it is well to stop the soda dressing after twenty-four hours and use alum acetate solution.

R

Alum	pts. 5
Lead Acetate	pts. 25
Water	pts. 500
Dissolve separately and mix.	
Do not filter.	
Shake before using.	

This solution is mild, non-irritating, and antiseptic. It has a white precipitate which seems to have a very soothing effect upon the skin. The solution has been used largely at the Worcester City Hospital and elsewhere for burns.

After the slough has separated and granulations begun, the burn may be considered a granulating wound.

To Hasten the Healing

Three things must now be considered, encouragement of epithelization, care of the granulations, and prevention of a deforming scar.

Epithelium forms from the germinal layer of the skin and its down pocketings, and it is from this layer that fresh epithelium is formed. Three things seem to assist epithelization greatly: (1) a sterile granulation tissue to grow over, (2) a smooth surface to grow under, and (3) pressure.

The difficulty of preserving sterile granulation tissue has been mentioned. If it can be preserved, wax provides probably the best type of surface to grow under. Its chief advantage is the ease with which it can be removed without injury

to the newly formed epithelial cells. At the Ambreine Hospital in Paris a thin layer of sterile zinc oxid ointment is applied along the epithelial edge further to protect the cells especially when the hot wax is applied. The cleansing of the wound after the removal of the wax is easy as compared with the cleansing of a wound covered with ointment. However, when there is any tendency to infection of the granulating surface, the ointment is probably somewhat preferable because of its antiseptic properties. The importance of pressure in the healing of granulating wounds was first noted by the author when examining a series of burns in the Worcester City Hospital. Burns of the back were in all cases progressing better than burns of the chest or extremity, and it was concluded that pressure was an accelerating factor. It seems to make little difference as to the type of covering which is employed, provided it is smooth. Thus sterile adhesive plaster has been used by many, and the author has obtained good results with gutta percha tissue, if there are no wrinkles or air spaces.

Granulation tissue, once infected, is almost impossible to sterilize, as those who worked in France know only too well; therefore the basic principle in the treatment of burns, as in all surgery, is to keep asepsis of the wound if possible and, if in spite of all care it becomes septic, endeavor in every way to render it again aseptic.

In burns involving a large area the burned area always becomes infected. This has been strikingly brought out by Fauntleroy and Hoaglund⁴ in their recent paper. In cases of this type it is obviously impossible to expect to obtain sterility. The method used in treating the very extensive and difficult burns employed by these authors, and also favored by Moorhead, is the open air treatment without any dressing at all. Massive crusts form over the burned areas and beneath these pus forms plentifully. Cases seem to do a little better if the crusts are not removed, but gently lifted when absolutely necessary to give drainage.

The crust forms a dressing very similar to parafin. Fauntleroy and Hoaglund, in discussing the treatment of these crusts say, "There seemed to be two separate, distinct periods, at which time two distinct results occurred simultaneously in all cases: the first period in which removal was continuously followed by the same heaping up process; the second period in which following a week's period of non-interference, removal at this juncture of the crust with the application of a thin layer of boric ointment on lint was followed

4. Fauntleroy, A. M., and Hoaglund, A. W.: Ann. Surg., June, 1919.

by a quick bridging over of the raw surface with new skin and complete healing with no scar formation in a few days' time."

Summary

While it should be possible to maintain sterility in burns, this is difficult and, when large areas are involved, almost impossible.

In treatment, the individual should be treated first, the burn second.

The treatment of the burned area may be divided into the primary treatment, which consists of cleansing and the application of a moist dressing, and the secondary or more permanent treatment, when open air, special ointments, solutions, or wax may be indicated.

Experience tends to show that absolute standardization of treatment is impossible in the secondary treatment as burns react in different ways; it would be advisable, however, to restrict the drugs and ointments to a minimum number, and to study each one carefully in order that a certain type of standardization may be obtained.

Emphasis should always be laid upon strict aseptic technic without which good results cannot be obtained.

MEDICAL BENEFITS UNDER WORKMEN'S COMPENSATION

Some of the difficulties in the administration of medical benefits under the Workmen's Compensation Laws have been due to basic defects which need to be remedied by further legislation. One of the most far-reaching in effect has been in placing time and money limitations upon such service instead of emphasizing the repair as far as possible of the injury and restoration of function. The relation of the hospital and workmen's compensation has been the subject of serious study by the hospital people, and we quote in full their recommendations to the American Hospital Association which embody the result of their investigations.

"The 1918 legislative committee's report urged hospital workers and associations to assume something more than a policy of indifference toward the subject of hospital benefits under Federal and state workmen's compensation laws. It was urged in that report that the common legislative and administrative limitations on compensation for hospital service result in injustice to both injured workmen and to hospitals. The principles expressed in that report are again commended to the attention of this Association.

"The principle of 'hospital cost for service rendered,' which has had the general approval of this Association, is an absolute essential in workmen's compensation laws for the injured workman and for the hospital which cares for him. If such laws limit rates of payment, as well as the number of days of hospital treatment, the result is loss of opportunity for the complete restoration of the workman seriously injured in industry. It also often places the hospital in the position of a choice between doing 'charity work' for the state and the private insurance company, or of discharging the patient too soon. These are what Dr. Royal Meeker, United States Com-

missioner of Labor, calls 'leaks in the workmen's compensation.' His address on this subject, at the annual meeting of the American Association for Labor Legislation in 1918, should be examined by hospital workers and associations.

"The following facts should stimulate the organized hospitals toward securing legislation for necessary changes in workmen's compensation laws:

"(1) The principle of 'hospital cost for service rendered' does not seem to have been included in other state or Federal workmen's compensation laws.

"(2) Provision for adequate hospital treatment for injured workers is far more important than allowance of money benefits; yet four states make no provision for such services.

"(3) Twelve states limit the cost to one hundred dollars or less; sixteen limit the period to thirty days or less.

"(4) Only four states permit of adequate medical and surgical treatment by placing no limits in their laws upon the time or cost of such service.

"(5) Attempts are now being made to include occupational diseases within the provisions of workmen's compensation laws."

COMMENDS AMERICAN FACTORY HYGIENE TO BELGIAN GOVERNMENT

Dr. René Sand and seven associates who were chosen on a commission sent from Belgium to the United States to study and report on the methods and principles employed in factory management in this country take note of the movement in several cities and states to cause medical examinations to be made of all boys and girls entering the trades or professions as a means of preventing impairment of physical functions be a wrong choice of occupation.

The report of the commission is of special interest to American physicians by reason of Dr. Sand's observations on American medical and social problems in industry.

Harry T. Collins, trade commissioner for the United States stationed at Brussels, Belgium, submits a statement of the views presented by the Belgian commission, which is published in *Commerce Reports*, July 3, 1919. His outline of the report is reprinted in full below:

In April, 1918, the Belgian Department of National Reconstruction sent to the United States a commission instructed to investigate and report on factory management and the organization of labor from the scientific, social, and industrial points of view.

This commission, which remained in the United States from April to July, 1918, was composed of eight members, each of whom devoted his attention to some particular phase of the investigation. The following were members of the commission:

M. O. Stels, professor at the University of Ghent, president of the commission.

M. H. Mavaut, director of the National Belgian Labor Bureau at London. (*Office National Belge du Travail*.)

M. A. Van Hecke, professor at the University of Louvain.

Dr. René Sand, professor at the University of Brussels.

Lieut. Henri de Man, general secretary of the Workmen's Educational Union. (*La Centrale d'Education Ouvrière de Belgique*.)

M. F. Vandersypen, engineer of the Katanga Railroad Co. (*La Compagnie des Chemins de fer du Katanga*.)

M. Ph. Stels, employment manager for the Belgian State Railway. (*Ouvrier-brigadier aux Ateliers des chemins de fer de l'Etat Belge*.)

M. P. Dejace, formerly adjutant of the Ninth Regiment, acting as secretary to the commission.

M. Stels gave particular attention to technical and scientific questions; M. Mavaut to legislation and administration; Dr. Sand to social hygiene and industrial fatigue; M. F. Vandersypen and M. Stels studied the details of organization in certain factory types; Lieut. Henri de Man and M. A. Van Helle, representing labor unions, gave particular attention to social problems in American industry.

General Conclusions of Commission

The report of the commission will later be published by the Department of Industry and Labor. At the last meeting of the committee, February 24, 1919, the following general conclusions, which form the gist of the report, were unanimously adopted. These conclusions are of interest to American industry as a foreign analysis and description of its activity and more particularly because the commission recommends in some of its conclusions changes to be made following American methods and models.

(1) The system known in Europe as "Taylorism" and in America as "Scientific management" has not, as we generally believe, been in universal practice throughout the United States. The spirit of the system and the principles of scientific organization have, however, been successfully applied in a large number of factories and plants of various kinds. An art and a science of organization based upon observation and experience, are in the process of constant elaboration and are permeating all realms of American life, including the Army, public philanthropy, education, hygiene, and commerce, as well as industry.

(2) The members of the commission believe that the public authorities ought to encourage the diffusion of the principles of scientific management. To this end they should attempt to interest the employers and engineers, on the one hand, and employees on the other, in its study and application.

A special bureau attached to the Ministry of Labor or the Department of Economic Affairs would be useful for undertaking the publication of documents relative to this question. It should contribute by all possible means to enlighten public opinion regarding scientific management. It is desirable, on the other hand, that important state departments participate in the movement and thus assure the development of methods as recommended. Special bureaus for this purpose ought to be created in the Railroad Administration, Department of Agriculture, and the Administration of Public Works. Such special bureaus should have direct connection with the general secretary of each of these departments.

(3) The introduction of an entirely new spirit in public education is necessary. Education ought, above all else, prepare the younger generation for activity in the modern world. The formation of character, a knowledge of public hygiene, and of economic and social problems, is of prime importance. The study of labor questions, of social hygiene, of scientific organization, of the rights of unions, of the psychology of labor, is indispensable to engineers, doctors, and lawyers. The principles and practice of scientific management ought to be taught to the future employees.

Cooperation of Employers and Employed

The same idea ought to prevail in the reorganization of professional instruction. In America and England, especially since the war, people have realized the importance of raising the intellectual level of the workers and increasing their technical knowledge.

(4) The members of the commission are able to state that the attitude of American industrial managers in regard to labor problems is very favorable to social progress. The conviction is becoming more and more universal that in order to increase production, it is necessary to place the worker in the best sanitary environment, to promote his general welfare, to encourage pleasant relations between employees and employers, and gradually to introduce the personnel into the problems of management, such as the fixing of conditions of labor and salaries, collective bargaining, and methods of dealing with laborers.

(5) Experience has in general demonstrated to the American industrial managers the advantage of a short working day and the value of the Saturday afternoon holiday. Due in large part to the intervention of the Government in war industries, the eight-hour day is tending to become quite universal in the United States.

Experience has shown the excellent economic and social results of the establishment in the factories of special departments, such as departments for the prevention of accidents, medical service (factory hygiene, periodical examination of workers, care of the sick and injured); employment department (charged with employing workers, and with placing and adapting them professionally). Other conveniences for workers include: Cafeterias, canteens, dressing rooms, drinking fountains, lavatories, shower baths, rest rooms, play grounds, libraries, clubs, workingmen's homes and gardens.

Lighting, ventilation, factory sanitation, and medical prophylaxis appear also to be important factors.

The problem of fatigue and that of the best method of fixing wages appears to the committee to be still unsolved.

(6) It is the general opinion in the United States that there should be equal wages for equal work, without distinction of sex. The employment of the mother of the family as a factory worker is not regarded as conducive to the welfare of the children.

It is the consensus of opinion in America that sixteen should be the minimum working age. A medical certificate of health, medical examination at stated periods, and professional instruction up to at least eighteen, are considered as eminently desirable for the younger workers.

(7) The introduction of a research bureau and a department of instruction, both general and technical, especially for the purpose of the professional adaptation of the workers, is spreading rapidly throughout the American industrial and commercial enterprises. In certain cases, the industrial managers unite for this purpose.

(8) Cooperation between industrial managers has been productive of good results in a number of fields, such as: Organization bureaus, common buying and selling organizations, apportionment of production, advertising, installation of common motor force for production, etc.

(9) Especially because of the tremendous importance of its domestic commerce, American industry has been able to increase national production by the specialization and standardization of tools and products, as well as by the development of mechanical means of labor.

(10) The creation of the National War Labor Board, consisting of representatives of workingmen's and employers' organizations, has been productive of excellent results, from the point of view of production, as well as in the prevention and solution of industrial conflicts.

(11) The members of the commission report that the high salaries common in America, corresponding to the high cost of living there, are accompanied by a much better standard of living than was common in Europe before the war.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C. E. A. WINSLOW, DR. P. H., *Editor*

THE FRAMINGHAM TUBERCULOSIS DEMONSTRATION

INVESTIGATIONS in regard to the etiology of tuberculosis which have been carried on during the past thirty-five years have revealed the main factors in the problem, and indicated several possible methods of control. We know that the germ of the disease is derived in a large majority of cases from the mouths of affected human beings, and in a small minority of cases from the milk of affected cows; the control of the careless consumptive and the pasteurization of milk suggest themselves as obvious sanitary measures. We know that local injury to the lung tissue, such as results from exposure to metallic or mineral dusts, and lowering of general vital resistance from underfeeding, deficient ventilation, alcoholism, and the like may constitute important factors in converting latent infection into active disease; the elimination of the dust hazard and the building up of the health of the people by hygienic and economic measures form a second possible line of defense. Finally, we know that the early active case of tuberculosis may generally be arrested, and the arrested case may generally be kept in that condition, by the strict observance of definite rules of personal hygiene such as are exemplified in the practice of the sanatorium; the prompt detection of early cases followed by sanatorium treatment or supervised home care constitutes a third possible method of control.

While we have, therefore, three different lines of attack upon the problem of tuberculosis, we unfortunately lack the exact knowledge of the exact quantitative importance of the various factors involved which would make it possible to determine the best weight to place, respectively, upon the control of sources of infection, the upbuilding of the vital resistance of the population as a whole, and the detection and care of early cases of the disease. In the absence of such

knowledge we have taken the line of least resistance. The control of all possible sources of infection and the creation of vital resistance throughout the whole population seemed tasks too vast to be seriously attempted. We have, therefore, controlled the grossest and most extreme examples of the careless consumptive, and have made a few half-hearted attempts at improving the environmental conditions in the tenement and the factory. The main stress, however, has for twenty years been laid on the detection of the early case of tuberculosis and the provision for it of sanatorium treatment or home nursing care.

The development of the anti-tuberculosis campaign along these lines has been accompanied by a marked decrease in the death rate from tuberculosis (from 201 per 100,000 for the Registration Area in 1904 to 142 in 1916). Grave doubt has existed, however, in the minds of many as to the existence of a causal connection between the two phenomena. It has been plausibly suggested that the reduction in the tuberculosis death rate which has taken place was due less to the anti-tuberculosis campaign than to a general improvement in vital resistance resulting from improvements in the standard of living, or perhaps to other still more obscure factors in the biology of the tubercle bacillus or its human host. Competent experts on tuberculosis have not hesitated to express a profound skepticism as to the question whether the anti-tuberculosis campaign as at present organized is actually yielding, or is capable of yielding, definite and tangible results.

In order, if possible, to solve this important question the Metropolitan Life Insurance Company three years ago made a gift of \$100,000 to the National Tuberculosis Association. A small, typical community was to be selected in which the most complete anti-tuberculosis campaign indicated by our present knowledge could be carried out as a demonstration experiment which should

indicate with some definiteness whether such a campaign could be expected to yield results or not. Framingham, Mass., was the town finally chosen for the demonstration, and the work was placed in the capable hands of Dr. D. B. Armstrong.

The time originally allotted for the experiment and the funds originally provided will both expire early in 1920. The National Tuberculosis Association, therefore, requested Surgeon General Blue to appoint a special Committee on Appraisal to report upon the work so far accomplished, and to make recommendations in regard to its possible continuance. The committee was appointed with Dr. A. J. McLaughlin as chairman, and on August 14 made its report, from which extensive extracts are reproduced on page 616 of this issue.

The conclusions of the Committee in regard to the work which has been accomplished by the Demonstration were highly favorable. It was felt that Doctor Armstrong and his associates have been successful in obtaining a fairly complete knowledge and a reasonably adequate control of the tuberculosis, both active and arrested, which is present in the community of 17,000 persons under their charge. The medical consultation service organized by Dr. P. C. Bartlett is given special praise as an invaluable contribution to the technic of public health organization, a service capable of application in many other fields besides that of tuberculosis. An account of the Consultation Service in Tuberculosis Work written by Dr. Donald B. Armstrong appears on page 633 of this issue.

During the progress of the demonstration the death rate from tuberculosis in Framingham has fallen from 93 per 100,000 in 1917, to 79 in 1918, and to 76 for the first five months of 1919. The Committee points out, however, that the period of three years is altogether too short to permit conclusions which shall be of substantial value; and shows by statistical computation that a continuation of the experiment for a period of five more years will probably be necessary in order to yield conclusive results. Such an extension of the demonstration should, however, make possible a clear answer to the question whether our present anti-tuberculosis program as exemplified at Framingham is or is not sound. If the answer is in the affirmative, we can proceed with confidence to modify the machinery devised at Framingham for more economical routine application on a larger scale. If the answer is in the negative, we must attack with renewed energy the theoretical problems underlying the etiology of tuberculosis in order to devise methods which shall be more effective.

It is gratifying to learn that the Executive

Committee of the National Tuberculosis Association has accepted the main recommendations of the Appraisal Committee and that the Metropolitan Life Insurance Co. has agreed to furnish the funds necessary for a continuance of the work. The completion of this most important community experiment in public health administration is therefore assured; and the vital statistics of Framingham will be watched by all public health workers with the keenest interest for the next five years.

EDITOR.

TAKING THEIR OWN MEDICINE

Not many bodies of physicians have measured themselves by the yardstick of accepted physical standards, but that is what took place at the International Conference of Women Physicians when Dr. Augusta Rucker, director of the health division, subjected the delegates of the conference to the Y. W. C. A. physical tests.

The first step in attaining the maximum of health is an examination which begins with the eyes and works down to the feet, taking into account posture, degree of strength, diet, constrictive clothing, and any other factors which influence health. "The human race might well adopt some of the customs of the stone age," says Doctor Rucker, "so detrimental are many of our habits to life." Compulsory physical examination at regular intervals is advocated. The same tests are recommended for children as for adults, the children to be examined yearly. Reasonable precautions may be exercised by adults if physical examination is made once every two or three years.

THE NEW TUBERCULOSIS SURVEY

The results of a survey carried on by the National Tuberculosis Association announced at the Russell Sage Foundation during the session of the Executive Committee in September indicated that the annual death toll of tuberculosis in the United States reaches the total of 150,000. This means more than 1,000,000 active and perhaps 2,000,000 unsuspected cases, according to the ratios developed from the Framingham experiments.

Among the noted experts at the conference were Dr. Victor C. Vaughan, president of the National Association; Dr. E. R. Baldwin of Saranac Lake, N. Y.; Dr. George T. Palmer, Springfield, Ill.; Dr. George M. Kober, Washington, D. C.; Dr. Hoyt E. Dearholt, Milwaukee, Wis.; Dr. Chas. White, Pittsburgh, Pa.; Dr. William H. Baldwin, of Washington, D. C.; and Dr. Charles J. Hatfield, managing director of the National Association.

As a result of the conference a fund of \$6,500,000 is asked to conduct an intensive educational campaign to impress upon all the people that tuberculosis is a preventable disease and to teach them the methods of protection against it. Plans are presented for the treatment of all afflicted persons and institutions are to be established for their care. Special activities will have as their object the detection of unsuspected cases of tuberculosis and the use of such methods as will arrest its development.

Electrotherapeutists Meet

The American Association of Electrotherapeutics and Radiology held its twenty-ninth annual session in Philadelphia, September 16 to 19, with an attendance of about five hundred physicians from this country and Canada.

NERVOUS AND MENTAL DISEASE AS A PROBLEM IN PUBLIC HEALTH

BY FRANKWOOD E. WILLIAMS, M.D., ASSOCIATE MEDICAL DIRECTOR, THE NATIONAL COMMITTEE FOR MENTAL HYGIENE, NEW YORK CITY

THE former division of health problems into major, those diseases which are communicable or infectious, and minor, all other diseases or conditions that affect health, is no longer tenable. Industrial hygiene and school hygiene, for example, have been found to be of much public importance; but in neither of them is infection the most important element. Tuberculosis and the venereal diseases remain health problems of the first importance, but their importance is determined, not by the nature of the diseases themselves, but by another consideration and a consideration that brings a new alignment in determining the relative importance of health problems.

Social Aspects of Nervousness

More important than the saving of any one life or any group of lives must be the saving of the structure by which all life is maintained. Hence it follows that, apart from all other considerations, that condition is of the greatest importance to public health the existence of which does the greatest damage to the social fabric. On this basis certain communicable diseases, as, for example, the venereal diseases, retain a place of the greatest importance, and communicable diseases as such will probably always retain the greatest potential importance. At the same time there are immediately thrown into relief certain non-contagious, non-infectious conditions that are found to have an actual and immediate importance not previously fully recognized. Among the group thus thrown into relief are the nervous and mental diseases.

Again, it is not the diseases in themselves that are of importance, but the destructive, corroding effect that these diseases have upon social life, frequently eating at the heart of family life, in

Herein lies the importance of nervous and mental diseases as a public health problem:

Not alone in numbers slain, though the number is large; not alone in the number of lives crippled, though the number is larger; and not in the burden of the expense entailed, though it is enough to give any community pause; but in the damage done to social structure by the struggle at adjustment and compromise of individuals ordained to failure. Infections may be eradicated and nervous and mental diseases may be reduced by intelligent, persistent health effort. These are problems for both physician and social service worker.

information in regard to their nature probably calls for a new assignment, but that does not concern us here. What does concern us is their social aspect. The study of the social effects of nervous and mental disease is comparatively recent, but it has been carried on over a sufficient length of time and with a sufficiently large number of cases and by a sufficiently large group of trained workers to amass a large body of data that warrant careful consideration. Medicine is not generally familiar with these data.

Statistics on Industrial Cases

Numbers alone cannot determine the importance of a problem of health. Coryza probably affects more individuals in a year than any other single condition, but coryza is not a major health problem, even granted that it may be of more importance than is generally conceived. Hookworm affects comparatively few, but so destructive is it in sapping the energies of a community that it must be reckoned as important in spite of the comparatively small number of its victims. The very large number of individuals affected annually by mental disease in the United States does not alone place its relative importance in the scale of public health problems, but before taking up more important considerations it may be well to review briefly certain figures.

The number of individuals cared for in hos-

pitals for mental disease has increased from 40,942 in 1880 to 239,820 in 1918—from 81.6 per 100,000 of general population in 1880 to 229.6 in 1918¹, as shown in the following table:

Year	Number	Per 100,000 of general population
1880	40,942	81.6
1890	71,028	118.2
1901	150,151	183.6
1910	187,791	204.2
1917	232,873	226.5
1918	239,820	229.6

The percentage of increase from 1910 to 1918 of those in hospitals in certain states as compared with the percentage of increase of the general population in those states during that period is as follows:

State	Insane in institutions	General population
Arkansas	45.1	13.0
Florida	48.8	23.2
Illinois	36.4	11.3
Indiana	26.0	5.3
Kentucky	26.6	4.9
Minnesota	30.8	12.2
Missouri	24.9	4.4
Montana	73.9	27.5
North Dakota	87.1	34.9
Texas	42.8	17.0
Utah	70.5	20.2

It should be borne in mind, of course, that these figures do not necessarily represent an actual increase in the amount of mental disease. What the actual increase has been, if any, it is impossible to determine. The apparent increase can on the whole be accounted for by the increased facilities for care in the way of hospitals that have been built and the gradual raising of the standard of care in the public hospitals so as to make them more acceptable to a larger number in the community. However, the figures are interesting as they stand. It should be borne in mind also that they are far from complete and do not show the amount of mental disease in any given state, since they show only the number of patients cared for in hospitals in the state, and can serve only as an index to the amount of mental disease. Not a state in the Union has provided adequate facilities for the treatment of nervous and mental patients. Everywhere there are over-crowding and delay because of lack of hospital beds. New York and Massachusetts have well regulated state hospital systems, but the state of New York has not built a new hospital in twenty years in spite of an average annual increase of 933 patients per year since 1910, and as a result the hospitals are badly over-crowded. Massachusetts has kept more abreast with her hospital building, but her facilities are inadequate. In other states, in which less attention has been given to the problem, conditions frequently beggar description. Pennsylvania still imprisons many of her patients in county asylums. These things are brought home to us with special keenness at this time, when it becomes necessary to find hospitals in which to

treat the returned soldier suffering from mental disease. The number of patients received annually by the hospitals for mental disease has increased each year since statistics have been kept. The total admissions to state hospitals for 1910 were 45,794; for 1917, 62,898. In Massachusetts and New York, two of the states in which a separate record is made of those who enter the hospitals for the first time, the number of patients newly admitted during the fiscal year ending in 1917 are as follows: Massachusetts, 4,085; New York, 6,877; a total of 10,962.

The significance of these figures is more readily grasped if they are stated in a somewhat different way. The figures for 1918 and 1919 are not yet available, but it may safely be assumed that they are not less than for 1917—as in previous years, they will no doubt show an increase. There are, then, in the state of New York more than 6,800 persons, and in the two states approximately 11,000 persons, none of whom has ever been inside a hospital for mental disease except, possibly, as a visitor, who at the present time are attending to their business, going about their daily duties, planning their recreations; but who, before this time next year, will have been committed as insane to one of the state hospitals.

Dr. Horatio M. Pollock, statistician of the New York State Hospital Commission, states effectively another phase of the same problem. Doctor Pollock points out that of the 35,213 patients resident in the New York state hospitals July 1, 1917, 18,940, or 53.81 per cent, where patients with *dementia praecox*. A census a year later showed that the number of *dementia praecox* patients had increased to 19,544. "If some unknown physical disease should strike down and kill 1,000 young people in this city (Brooklyn) during the current year," says Doctor Pollock, "do you think the medical profession, the newspapers, and the public generally would view the matter with complacency? Yet *dementia praecox* will come into this city as a masked enemy and steal away the minds of 1,000 young men and young women and condemn them to a living death during this year, 1918, and scarcely any public mention of the matter will be made."²

The cost of maintenance of patients in state hospitals during 1917 was \$43,926,888.88. In Massachusetts, New York, and Ohio, the cost of maintenance was as follows:

Massachusetts	.....	\$ 4,438,101.33
New York	.....	7,872,857.93
Ohio	.....	1,954,811.51
Total	.....	\$14,266,070.77

¹ Pollock, Horatio M., and Furbush, Edith: Annual Census of the Insane, Feeble-Minded, Epileptics, and Inebriates in Institutions in the United States, January 1, 1918, Mental Hygiene, 1919, III, 78-107.

² Pollock, Horatio M.: Dementia Praecox as a Social Problem, The State Hospital Quarterly, August, 1919.

These figures do not include expenditures for extraordinary repairs, new construction, or permanent improvements.

In addition to those above mentioned, more than one million dollars annually for the maintenance of patients in hospitals for mental disease is expended by Indiana, Michigan, Minnesota, Missouri, and New Jersey; Ohio expends approximately \$2,000,000, California and Pennsylvania more than \$2,000,000 each, and Illinois more than \$3,000,000.

In a recent study of 1,544 patients suffering from syphilitic mental disease in the New York state hospitals the statistician of the New York State Hospital Commission estimated that the annual loss to the state of this group alone is \$5,398,644.99, as follows:

Cost of maintenance of 1,544 patients in institutions.....	\$ 471,918.72
Loss of earnings of males.....	4,652,912.35
Loss of earnings of females.....	273,783.92
	\$5,398,644.99

The figures thus far given represent only the insane in hospitals. It should be remembered, however, that neither numerically nor socially are the insane the most important group of those suffering from the various nervous and mental diseases. It is probably fair to say that they are the least important. The figures given have not included either those who are feeble-minded or those with neuroses. While accurate figures of the number in these two groups do not exist, unquestionably each group exceeds the number in the insane group.

As Col. Pearce Bailey, formerly chief of the Division of Neurology and Psychiatry, office of the Surgeon General, Washington, has pointed out, "the neuropsychiatric examination in the army disclosed an astonishingly large number of men suffering from nervous and mental disease or defect. As compared with other groups of diseases, the nervous and mental group stands fourth in order of frequency, rejection for these causes being exceeded only by rejections classified under diseases affecting (1) eye, ear, nose, and throat; (2) bones and joints; (3) heart and blood vessels." More than 72,000 American youths were found unfit for military service because of nervous or mental disease or defect.

As has been said before, number is not a safe criterion upon which to judge the importance of a public health problem. However, when it is taken into consideration that they indicate broken homes, children adrift, business ruined, promising careers checked, pain, misery, and loss to many thousands more than are actually involved, these numbers alone are sufficiently significant to warrant more attention to the problem than any state, medical school, or health organization

has yet given to it. But there are considerations of a social nature that transcend in importance mere numbers.

Mentality and Maladjustment

The real significance of mental disease lies in the influence it has upon conduct. In the effort we all must make to adjust ourselves to community and social life there are both physical and mental handicaps. The physical handicaps are readily recognized and in most instances easily allowed for; but the mental and nervous handicaps are neither so readily nor so generally recognized and, therefore, are not so easily taken into account. That a man with a defective heart cannot run a Marathon race is recognized by every one at once; that a healthy looking adult with the mental development of a child of seven cannot successfully maintain himself in the community is not so generally recognized. As a matter of fact, many seem still unaware that there is a large group in the community whose mentality is so defective that they must be considered and dealt with as children. Allowance having been made for the unusually bright and the dull, for the sane and the insane, there somehow exists the feeling that all the rest of us are alike and can be counted upon to take our proper places in the life of the community. If one does not find his place, if one fails to maintain himself, if one "kicks against the pricks," it is because he is "lazy," or "willful," or a "fool," or "mean," or "criminal," according to the degree and nature of the failure. This view would not be serious except that society is more or less organized upon it. "This fellow has a strong back. He'll make a good soldier," was the view of a good many army officers until it was brought home to them by experience that a soldier did not fight alone with his back. As well say, "This motor car has a beautiful body. I'll take it."

When it is realized that in the intellectual field alone there is a great variety of quantitative and qualitative difference between individuals, and that these differences exist also in the other mental fields; that a nervous system is not just a nervous system, but its own particular nervous system and that it differs from other nervous systems in its degree of stability and its ability to adjust to different degrees and accumulations of stimuli, then behavior, whether social or anti-social, becomes more comprehensible. The handicap of a slight degree of defect in this field or that field exists for those who find themselves within the broad limits of those called "normal," and these handicaps spell efficiency or inefficiency, success or failure, in varying degrees; but if these

comparatively slight degrees of variation in personality and character traits and intellectual qualitative and quantitative differences can be recognized as handicaps among those who, as "normal," carry on the work of the world, how much more serious must these handicaps be for those who fall without the broad boundaries of the "normal" and into the group of those diseased? If the "normal" at times fail or are inefficient, is it surprising that the "abnormal," contesting in the same event with their tremendously greater handicap, come a cropper and become hazards for the more fortunate?

It is not necessary to theorize upon these matters. The big boy dullard and the big girl dullard, who absorb an inordinate amount of a teacher's strength and time, and thereby retard the progress of the rest of the school, have been known since there have been schools; but, with little to show for her effort except the loss to the other children, the teacher until recently has been hopelessly tied to them. Now it is found that they are feeble-minded, that they have been so from birth, that their development, under the best circumstances, will be limited, and that they cannot progress in a system created for the intellectually normal child. These children are found in all school systems. Those school authorities who are facing the situation squarely and not burying their faces in the sand are now withdrawing these children from the regular grades and placing them in special ungraded classes, with teachers trained in the teaching of the mentally defective. A recent act of the New York Legislature makes the formation of ungraded classes compulsory in any school in which there are mental defectives. This group of children forms one of the most difficult problems in education.

Social Conduct of Defectives

But the dullard does not remain forever in the school. Montague,³ in her study of the children at the Children's Court of the city of New York, reports that 82 per cent of the 1,082 cases examined were classifiable "in terms of deviation from the normal."

Especially significant are the findings in regard to the recidivists, those chronic offenders, even among children, who appear again and again before the court. Of the 268 recidivists examined, 39 were found to be normal; the others were found to be retarded intellectually, feeble-minded, constitutional psychopathic inferiors, psychotic, psychoneurotic, or epileptic. Of even greater significance, probably, are Healy's studies in the Chicago and Boston juvenile courts of the psychopathic and neurotic children.⁴ One should

understand Healy's "boy Jim."⁵ Children, even mentally defective, psychopathic, and neuropathic children, grow up; their handicaps remain the same; the complexity of their lives becomes greater. We meet them again in the reformatories.

PERCENTAGE OF INMATES IN REFORMATORIES FOUND TO HAVE NERVOUS AND MENTAL ABNORMALITIES.

Institution	Number of cases studied	Percentage with Nervous and Mental Abnormalities
N. Y. State Reformatory, Elmira.....	400	58
Mass. State Reformatory (for men).....	1,376	59
Mass. State Reformatory (for women).....	500	63
House of Correction of Holmsburg, Pa.	100	69
Western House of Refuge for Women, Albion, N. Y.	185	82.1
Westchester County Penitentiary.....	225	57
Massachusetts Reformatory (women).....	5,310	72.2

SHOWING PERCENTAGE OF INMATES OF REFORMATORIES FOUND FEEBLE-MINDED.

Institution	Number of cases studied	Percentage feeble-minded
N. Y. State Reformatory for Women, Bedford Hills	335	31.9
Massachusetts Reformatory	1,376	29.2
Massachusetts Reformatory for Women.....	500	16.45
Western House of Refuge for Women, Albion	185	33.5

But they do not seem to reform:

SHOWING PERCENTAGE OF INMATES OF PRISONS EXHIBITING SOME NERVOUS OR MENTAL ABNORMALITY.

Institution	Number of cases studied	Percentage found to have nervous or mental abnormalities
Auburn Prison (N. Y.).....	459	61.7
Sing Sing Prison (N. Y.).....	608	59
Indiana State Prison.....	100	45
Massachusetts State Prison.....	300	34.9

SHOWING THE PERCENTAGE OF INMATES OF STATE PRISONS FOUND FEEBLE-MINDED.

Institution	Number of cases studied	Percentage Feeble-minded
Sing Sing Prison (N. Y.).....	608	21.8
Auburn Prison (N. Y.).....	459	35.6
Mass. State Prison (men).....	308	22
Joliet Penitentiary (Ill.).....	*49	28.5
Auburn Prison (women).....	*76	25
Indiana State Prison.....	100	23
San Quentin (Cal.).....	150	30.7

*Women.

Of the inmates in prisons throughout the country where studies have been made, 27.5 per cent are found to be feeble-minded. When the recidivists, the chronic offenders, alone are studied, the percentage of nervous and mental disease mounts so high that it is fair to say that these conditions form the backbone of recidivism. Glueck,⁶ in his study of the admissions at Sing Sing, not infrequently found feeble-minded or psychopathic individuals who began their delinquent careers as children and with repeated incarceration passed through the institutions provided for delinquents of various ages until, in old age or in middle life, they had spent more time inside than outside correctional institutions.

Fernald⁷ points out that a very large proportion of the neglected and dependent children in

³ Montague, Helen, M.D.: Psychopathic Clinic of the City of New York, Second Annual Report, Mental Hygiene, 1919, III, No. 4.

⁴ Healy, Wm., M.D.: Pathologic Lying, Accusation, Swindling: a Study in Forensic Psychology, Little, Brown & Co., Boston.

⁵ Glueck, Bernard, M.D.: A Study of 608 Admissions to Sing Sing Prison, Mental Hygiene, 1918, II, No. 1.

⁶ The Individual Delinquent, Little, Brown & Co., Boston.

⁷ Healy, Wm., M.D., and Bronner, Augusta F., Ph.D.: Medico-Psychological Study of Delinquents, Mental Hygiene, 1919, III, No. 3.

⁸ Glueck, Bernard, M.D.: Study of 608 Admissions to Sing Sing Prison, Mental Hygiene, 1918, II, No. 1.

⁹ Types of Delinquent Careers, Mental Hygiene, 1917, I, No. 2.

¹⁰ Concerning Prisoners, Mental Hygiene, 1918, II, No. 2.

¹¹ C.F.—Mental Disease and Delinquency, by V. V. Anderson, Mental Hygiene, 1919, III, No. 2.

¹² Fernald, Walter E., M.D.: The Burden of Feeble-Mindedness, Publication No. 1, Massachusetts Society for Mental Hygiene.

the care of the state of Massachusetts are feeble-minded and are the offspring of the feeble-minded; that many of the immoral and diseased girls found in rescue homes and shelters are defective and absolutely incapable of reform or of self-support; that a large proportion of the mothers of illegitimate children are feeble-minded; that a majority of the parents prosecuted by the Society for the Prevention of Cruelty to Children for abuse of their own children are feeble-minded. Studies of prostitutes have invariably shown a high percentage of mental defect and psychopathic conditions.

Recent surveys in various states have shown areas honeycombed with mental defect, communities from which most of the able in mind and body have long since passed out into the world at large, leaving the defective to breed among themselves; foci worse than foci of infection.

As has frequently been pointed out by students of these problems, hereditary pauperism or pauperism of two or more generations of the same family generally means hereditary feeble-mindedness. Families have been studied that have been paupers for many generations, some of their members having been born and even conceived in the poor-house.

Complexity of Neuropathic Problem

The rôle of the psychopathic and neuropathic individual in community life is more difficult to indicate in a brief space than the rôle of the feeble-minded, but it is no less important. Adler's⁸ study of unemployment and personality at the Boston Psychopathic Hospital is suggestive in this regard. Adler concluded:

(1) There are individuals in the community who for a variety of reasons are not able to regulate their conduct on the basis of experience. One of the difficulties that such individuals get into is unemployment. The results of their unemployment bring hardships on themselves and on their dependents.

(2) While some of these individuals show defects of such a severe nature that they may be regarded as hopeless and, therefore, can be segregated, there are others in whom the deviation from the normal is not sufficient to make them incapable of supporting themselves at all times and it is unwise to segregate them and prohibitively expensive.

(3) From our analysis it appears that there are two types of individuals that experience these difficulties. One type. . . . the inadequate and paranoid . . . and the other the emotionally unstable.

Both industry and labor are showing an increasing interest in the part played by nervous and mental diseases in the industrial world. An engineering foundation has recently financed a

study of the effect of these diseases in industry; an important women's labor union has encouraged the organization of a mental hygiene clinic to advise in unadjusted and difficult cases.

Brought from the community by the army draft were a large number of individuals classified by the neuropsychiatric officers as constitutional psychopathic inferiors. Investigation showed that these individuals had never been able to adjust themselves successfully to community life. Trial showed that they were unable to adjust to life in the army. They were discharged, several thousand of them, and returned to the communities from which they had come, where they are now milling on.

Herein, then, lies the importance of nervous and mental disease as a public health problem: not alone in the number slain, though the number is large; not alone in the number of lives crippled and blasted, though the number is larger; not in the burden of expense entailed, though it is enough to give any community pause; but in the damage done to social structure by the struggles at adjustment and compromise of individuals ordained to failure—more often than not failure with consequences more than individual—unless protected and safeguarded by a community manifesting a degree of understanding greater than has ever yet been shown. Infections may be eradicated; nervous and mental disease may be largely reduced in number, though it may not be so readily done away with. But the consequences of nervous and mental disease may be minimized by an intelligent, persistent public health effort.

MODERN MEDICINE IN PRODUCTIVE STAGE, SAYS EDUCATOR

"Productive medicine has supplanted mere curative science, and physicians of today seek to eradicate disease rather than effect a cure after the disease has appeared," said Dr. William Darrach, new dean of the faculty of medicine at the opening exercises of the College of Physicians and Surgeons of Columbia University.

"We are not merely checking disease," he commented, "but we are gaining ground, and though we may not expect to obtain perfect health for all, we are traveling in that direction."

Summarizing the work of medicine in the war, he stated that instead of a loss of weight which resulted from former wars, there was an average gain of ten pounds among the members of the American Expeditionary Force; the weeding out of the unfit brought to light cases of incipient disease in time for their correction. By preventive inoculation, typhoid fever became a negligible factor; tetanus and respiratory diseases were kept at a minimum by means of preventive measures; and prompt treatment of shell shock cases resulted in few protracted cases of war neuroses among the expeditionary forces. Dr. Darrach spoke of the danger of specialization which must be avoided if the best results are to be obtained, for ultimate success depends on unity of effort.

⁸ Adler, Herman M.: *Unemployment and Personality: a Study of Psychopathic Cases*. Mental Hygiene, 1917, I, No. 1.

THE PRESENT STATUS OF COUNTY HEALTH WORK IN TENNESSEE

BY E. L. BISHOP, M.D., DIRECTOR, BUREAU OF RURAL SANITATION, STATE BOARD OF HEALTH, NASHVILLE, TENN.

THIE Bureau of Rural Sanitation of the Tennessee State Board of Health consists of a state director, office assistant, four field directors, and lay assistants with the field units.

Financial Arrangement

The source of funds for this work is three-fold, being derived from the State and International Health Boards and individual counties. The funds derived from the State and International Health Boards are used for the salaries and expenses of the field directors and for administration. County funds, supplemented to a certain extent by State and International Health Board funds, are used for payment of lay assistants.

Plan and Extent of Campaigns

Campaigns range in duration from three to twelve months, the length of time being dependent upon county appropriations. The initial work in a campaign is the sanitary survey of the areas selected for intensive health work. This survey consists of a house to house inspection with the

collection of data on the sanitary surroundings, housing conditions, past and present incidence of disease, and other factors.

The units of work in a campaign are as follows:

1. Educational work, consisting of health talks, distribution of literature and individual contact with the people.
2. Soil pollution work, consisting of construction of sanitary privies and the examination and treatment of hookworm disease.
3. Antityphoid vaccine administration, consisting of the free administration of vaccine to all persons desiring it.
4. Medical inspection of schools, consisting of the inspection of all school children in the areas selected for intensive effort.

In counties where a year's campaign is arranged for, two additional units are added.

5. Life extension work.

6. Child and infant welfare work.

The effort is made to assemble and coordinate all available public health agencies in the areas

An insanitary structure which was replaced by double semi-tanks, that have been installed by the Tennessee State Bureau of Sanitation.



These pictures tell the story of what happened to the insanitary privies in the school yard of a Tennessee rural school.

in which work is being done; if possible, the direction of these cooperating agencies is placed in charge of the field director during his stay in the county.

Results to Be Achieved

The extent of this work has been comparatively limited in the past, due to the difficulty in securing county appropriations; but we are now rapidly placing all of our units on an annual basis of operations. Under this plan effort is extended to as wide an area of the county as it is possible to work efficiently over the period of the campaign. When only three months work is provided for, three demonstration areas of from

Two clinics in Monroe County, Tennessee, where 2,882 people were given anti-typhoid serum in three months. Neither picture gives any adequate idea of the number treated in the respective communities during a health campaign.



75 to 100 families each are selected in the county, and effort is confined to intensive operation within the limit of these areas.

The results for which we are striving are: (1) public health education of the masses; (2) stimulation of local interest in public health matters; (3) lower mortality and morbidity rates from soil-borne disease, through the improvement of home sanitation and the administration of typhoid vaccine; (4) the relief and control of uncinariasis; (5) the future establishment of county health departments, to consist of a full-time health officer, and the necessary personnel for the proper performance of his duties.

The Madison County Program

It will be readily realized that it is not always possible to accomplish effectively the results outlined above, due to the failure of local cooperation. We are striving to do some definite work so that we may demonstrate the necessity of county health departments.

In Madison County a program of one year's

duration has been arranged through the co-operation of the county court, which appropriated \$2,400 for this purpose. This sum is to be supplemented by the sum of \$1,500 from State and International Health Board sources, the total of \$3,900 to be used for health inspectors and construction men. The expenses of the field director, for supplies and equipment will be borne from



The road entering the Knobs to Union Hall, crossroads community in Monroe County, Eastern Tennessee. This beautiful but sparsely settled stretch of country suggests the distances residents have to travel to attend the clinics.

State and International Health Board funds. The local chapter of the American Red Cross has appropriated \$3,000 for the budget of an educational nurse director to be attached to our staff in this county, and to do work entirely under our direction. This nurse will be used exclusively in the rural areas of Madison County. Her duties are to make a house to house contact with families, give educational lectures, teach hygiene in the schools, form health leagues, distribute literature, and assist the field director in the administration of typhoid vaccine and in the medical inspection of schools. She will also collect data on the incidence, both past and present, of preventable disease among the persons of the areas in which work is done.

The local nursing agency, the Jackson Visiting Nurse Association, is cooperating with us to the extent of conducting a sanitary survey of the city of Jackson. Otherwise, work in this county follows the routine method outlined, with the exception that we are especially stressing the campaign in this county for the purpose of making it a demonstration county for west Tennessee.

The work in this county is mentioned because of the fact that a definite constructive piece of work was performed, and also because of the fact that the duration of the campaign extended over a period of three months only. The campaign in this county followed the routine method with the

exceptions that administration of typhoid vaccine and home sanitation were especially stressed for the reason that there was an exceptionally high typhoid incidence and a low percentage of hookworm infection in this county.

Illustration was thus obtained of the control of three phases of the typhoid problem, namely: (1) post-epidemic control during the period of a subsequent typhoid season; (2) control of an epidemic at its height; and (3) control of a potential epidemic.

During 1918 in one community of 665 persons there occurred 22 typhoid deaths according to local report, and 16 deaths according to definite record. On June 2, 1919, a field director from the Bureau of Rural Sanitation began work in this area and administered vaccine to 600 persons. He also put carpenters to work building sanitary privies, ultimately constructing these for

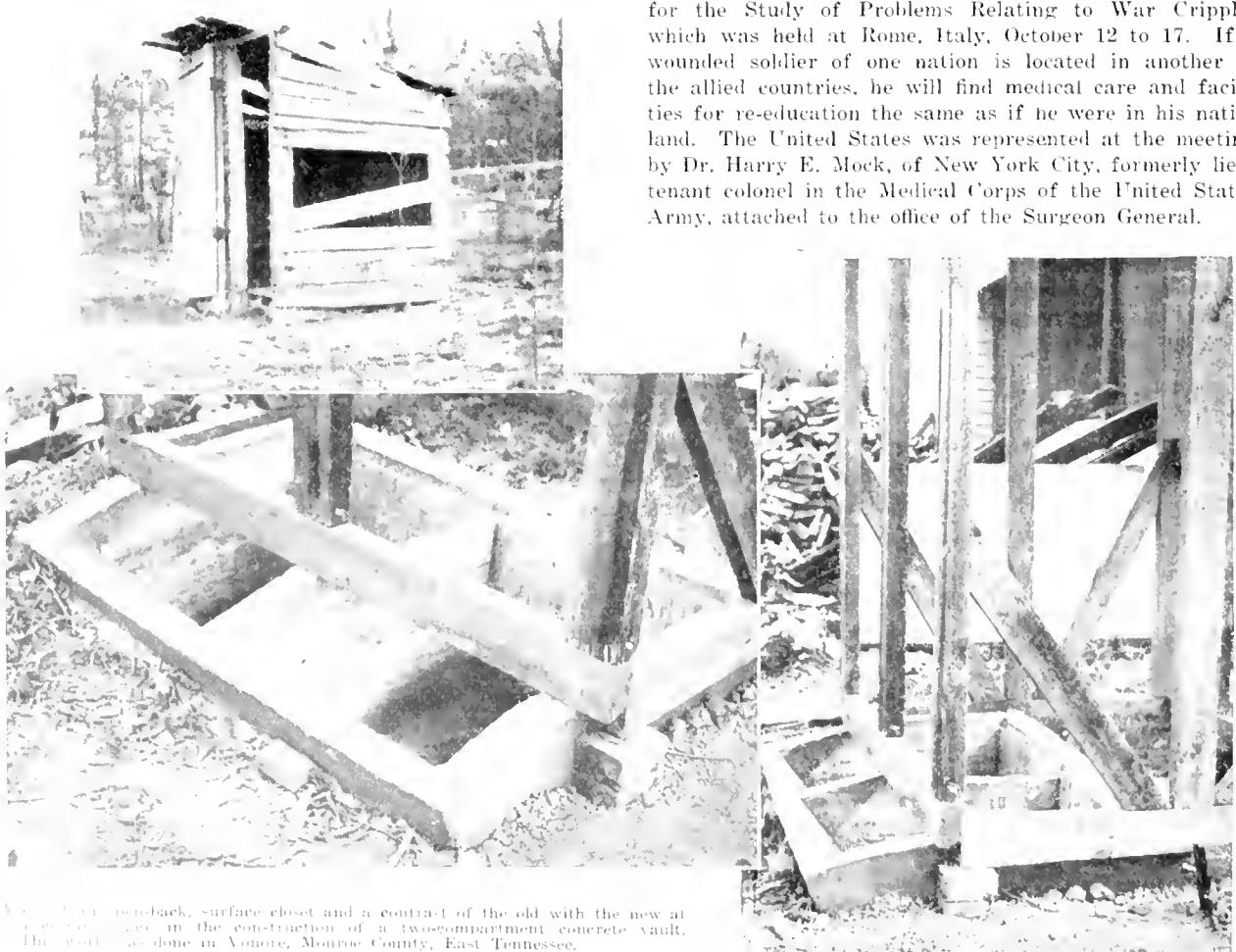
about 40 per cent of the homes, paying special attention to those homes in which typhoid had occurred during the previous year. This season not a single case of typhoid occurred in that community.

In a second community 7 cases of typhoid fever occurred in rapid succession. The administration of vaccine was begun, by the three dose method and, while 5 cases of typhoid developed during the two weeks necessary to administer vaccine, not a single case occurred after the administration of the third dose. Sanitary privies were constructed in this area also, about 30 per cent of the homes being provided therewith. No deaths and no other cases of typhoid have occurred in this community.

In a third community two cases of typhoid fever developed following the visit of a typhoid carrier. Vaccine was administered upon a community-wide basis but no construction work was done, due to the regrettable lack of funds. No other case of typhoid fever has developed in this community.

Interallied Care for Disabled

Arrangements for cooperation in the care of disabled soldiers were made at the Third Interallied Conference for the Study of Problems Relating to War Cripples which was held at Rome, Italy, October 12 to 17. If a wounded soldier of one nation is located in another of the allied countries, he will find medical care and facilities for re-education the same as if he were in his native land. The United States was represented at the meeting by Dr. Harry E. Mock, of New York City, formerly lieutenant colonel in the Medical Corps of the United States Army, attached to the office of the Surgeon General.



A modern, open-back, surface closet and a contrast of the old with the new at Venore, Tenn., in the construction of a two-compartment concrete vault. The work was done in Venore, Monroe County, East Tennessee.

THE ANTI-TUBERCULOSIS CAMPAIGN IN OKLAHOMA

JULES SCHEVITZ, GENERAL SECRETARY, OKLAHOMA TUBERCULOSIS ASSOCIATION, OKLAHOMA CITY, OKLA.

THE Oklahoma Tuberculosis Association was organized in 1917. At that time Oklahoma had a population of more than two millions, which represented a tenfold increase over the population of thirty years before. Already this young state was facing the problems of the older states, yet it did not enjoy the protection of a thoroughly organized health administration.

The state tuberculosis association having begun its work on borrowed funds, it was necessary that its first Red Cross seal campaign be conducted in a thorough and aggressive manner. Despite the youth of the Association and the absence of any local organization, the sum of \$40,000 was raised from this source.

Forethought in Expenditures

The first problem of serious import which confronted the Association was the question concerning the expenditure of the proceeds raised from the seal campaign. Should this money be distributed among those communities where seals were sold to be spent by hurriedly organized local committees, or should all the proceeds be retained by the state Association to be distributed to the cities when local health associations were organized, and full time public health nurses employed? The latter course was adopted and the Association adhered to the principle laid down in its Red Cross seal contract, that the most valuable purpose for which the funds could be spent was to build up and maintain a strong and centralized state organization. The wisdom of this move became more apparent as the program of the Association developed.

The promise had been made to a number of communities that they would be furnished with public health nurses. The efforts of the Association to fulfill these promises were almost a complete failure. The enlistment of many public health nurses in war service, accompanied by a nation-wide increase in the demand for such

CAN WE SELL HEALTH TO THE MASSES?

A popular need should create a popular demand, but the whole people never demand a given article without a preliminary educational campaign, followed by consistent efforts to boost the product.

Convince the public that health is desirable, that it is purchasable, that it is largely to be achieved by personal effort, and each man will go after his share.

Shall our physical standards be lowered, or shall we take as our objective that which properly should be the norm of physical prowess?

workers made it practically impossible to secure the type of nurse necessary to commence this pioneer work.

Fearing the patience of these communities was being taxed too severely, the Association set about to relieve the situation by conducting a public health nursing institute for graduate nurses, the course including both field and lecture work, and extending over a period of ten weeks. The course

followed the outline planned by the National Organization for Public Health Nursing. It was understood that the institute was only an emergency substitute for a complete course in public health nursing and was in no case to be confused with the latter. A teacher of long experience was engaged to take charge of the institute; but in spite of all efforts the course was a failure from the standpoint of furnishing the state with trained women who were prepared to carry on effective public health nursing. The nurses enrolled for the course were of mediocre training and lacked the necessary educational background. The facilities for field work were entirely inadequate and the instruction in this branch was unsatisfactory. We learned over again, and in a very forceful manner, that a public health nurse cannot be made in ten weeks.

A Well Balanced Campaign

With this brief review of some of the early experiences of the Association we may proceed to a discussion of its program and policies.

From the beginning those in charge of the direction of the Association felt that whatever the program undertaken, it should be a well co-ordinated, scientifically worked out plan; that the place of each activity should be thoroughly understood, and its relative importance appreciated. This was very important if the Association was to conduct a well rounded anti-tuberculosis campaign and if the proper emphasis was given to the various branches of the work.

Little has been done to work out the relative

values in the anti-tuberculosis campaign. While these experienced in administrative health work appreciate the practical difficulties in conducting a campaign according to any set rules, yet it would be a tremendous advantage to keep a guide of the relative values of the different health measures constantly before us. It would not only pre-



Cover design of the baby pamphlet prepared for the baby welfare conferences. The original is printed in natural colors.

vent undue stress being placed on some comparatively unimportant phase of the program, but, more important, it would enable the workers to plan their campaign with greater precision and definiteness of purpose.

Legislative Campaign

The work in Oklahoma was planned originally to include activities along three general lines: first, the legislative activities including the establishment of sanatoriums, the creation of a Bureau of Tuberculosis in the state health department, and the compulsory reporting of cases of tuberculosis; second, the organization of local health associations, the employment of public health nurses, and the operation of dispensaries; and, third, the prosecution of a health educational campaign to reach all classes of the population.

In the past few years the number of reported deaths from tuberculosis was from 700 to 800 annually, though it was admitted the deaths from this disease were both incompletely and inaccurately reported. Applying the specific death

rate of 150 per 100,000 population to Oklahoma, which is the approximate death rate from tuberculosis in the United States, we should expect at least 3,000 deaths from this disease each year. The Indian population, which in 1910 made up nearly 5 per cent of the population, and the negro element, which is about 10 per cent of the total population, both suffer from exceedingly high death rates from tuberculosis; so the estimate of 3,000 deaths annually from tuberculosis in Oklahoma is probably conservative.

Here was a state with a population of more than two millions, and an annual loss from tuberculosis equivalent to at least three thousand deaths, yet there was not a single public tuberculosis hospital bed available. To make matters worse, the general hospitals were not permitted to admit patients suffering from tuberculosis so that the advanced cases were left to die at home, infecting the children and others about them. The patient having the disease in an incipient stage was likewise able to entertain but little hope for recovery.

No Public Care for the Tuberculous

Three thousand deaths from tuberculosis each year and not a single public bed to care for the many thousand living cases, was the cry raised throughout the state. Finally, as a result of one of the most intensive health advertising campaigns ever waged in the country, the state legislature passed its most progressive piece of health legislation in the sanatorium bill. This bill provides for the construction by the state of two sanatoriums for white people and one for negroes. A bureau of tuberculosis is established in the state health department, the chief of this bureau to be appointed by the state Commissioner of Health. The superintendent of each tuberculosis sanatorium is authorized to have at least one public health nurse on his staff, and is obliged to conduct tuberculosis clinics throughout his section of the state at periodic intervals. The sanatoriums are to be constructed by the state and will be maintained jointly by the state and county. The amount paid by the county is to be fixed by the state Commissioner of Health, within prescribed limits. Each county is authorized to make a special tax levy of not exceeding one mill for the purpose of maintaining patients from its territory in the tuberculosis sanatorium. It will be recognized that this bill contains a complete set of tuberculosis laws in one. The educational campaign which preceded the convening of the legislature included the mailing of 350,000 signed postcards to the members of the legislature and the governor, the sending out of press stories and

boiler plates to all state papers, the use of attractive display advertising prepared by experts in all the large daily papers in the state, the display of lantern slides in all moving picture theaters, the preparation of special literature, blotters, colored poster stamps, and so on. The assistance and co-

state have already been organized in this way and are employing from one to three public health nurses each. There are at least four other counties waiting to be organized when properly trained workers are available. Soon every large center of population in the state will have a local health organization.

It is needless to enter into a discussion of the place of the public health nurse in the anti-tuberculosis and general health campaign. Her actions and accomplishments speak for themselves. The many tributes which have been paid these women are richly deserved. Those who have had the opportunity to observe them work on virgin soil, and to see them bring about a complete transformation in a community from ignorance and indifference to life and interests in the needs of the community, can testify to the value of the public health nurse. From the purely scientific standpoint it is



A reproduction of some of the educational material prepared for the sanatorium campaign. Note the special stationery, blotter, post-card and poster stamp.

operation of more than one thousand persons were enlisted in the campaign.

As has already been pointed out, the Association was confronted with a scarcity of public health nurses so that one of the important phases of its activities, the formation of local organizations, was considerably hampered. Here again a vital question of policy had to be decided. Should local organizations be perfected as early as possible, a public health nurse being employed whenever one was available, or should the final organization of local associations be delayed until competent workers could be obtained? In order to avoid the handling of unwieldy and unsatisfactory "paper organizations," it was decided, with the full accord and approval of the communities to be organized, that no permanent organization would be perfected until the employment of a properly qualified worker was assured. After an organization had been perfected the state association was prepared to furnish it with a sum of money, the amount depending upon the proceeds from the local seal campaign.

Eight of the larger cities and counties in the

recognized that the public health nurse occupies the pivotal position in the whole public health campaign.

Through the agency of public health nurses, local health organizations operate tuberculosis and infant welfare dispensaries where patients are cared for according to the best and highest standards. These dispensaries are completely equipped and are in charge of the best trained physician in the community. The excellent work carried on in some of these places has already received the commendation of leading health workers.

In this connection it should be pointed out that even where a health association is not called a public health association,—some are called tuberculosis associations,—all are interested in the general health campaign.

The Oklahoma Tuberculosis Association has always maintained the campaign against tuberculosis is not a campaign against one specific disease, but that it is an effort for the improvement of the public health in general. The educational and special campaigns waged by the city and

county associations are rich in originality and effectiveness but cannot be included here.

Many persons in speaking of the activities of the Association refer particularly to its health educational work. While considerable time and effort have been devoted to this phase of the cam-



A reproduction of the design used on posters and lantern slides for the anti-spit campaign.

paign, there are many other activities which have been receiving the consideration of the Association.

It is interesting to note how much the ultimate success of our public health campaign depends upon the education of the public. Whether our money and efforts are expended in the operation of sanatoriums, the maintenance of dispensaries, or the employment of public health nurses, the main value of these measures rests in the lessons they teach. In order to supplement the educational efforts of these agencies, which must of necessity be limited to certain groups in the community, health organizations resort to numerous methods aimed to bring their message to the attention of the people.

A great deal of time has been given to the careful analysis of educational methods and the relative values of different forms of education. The Oklahoma Tuberculosis Association has repeatedly called in the assistance of experts in this line because public health education, like a great many other things, depends for its success upon the application of certain well defined scientific principles. A disregard of these principles spells inefficient and unsuccessful health education.

In a recent article on "Advertising as a Force in Public Health Education" the author discussed some of the principles to be considered in effective public health education. It was pointed out that the health educational campaign is essentially a selling campaign. The article we offer for sale is health. By the use of sound advertising it is possible to make a health campaign as successful as that of any well advertised commercial enterprise.

A General Publicity Campaign

The educational material prepared by the Association includes nearly every known form of publicity and is in use in one form or another in twenty-five or thirty states in the country. The preparation and display of a series of twelve beautifully illustrated lantern slides, in 150 moving picture theaters in the state was very successful in driving home the principles of correct living, with special reference to methods for the prevention of tuberculosis. Anti-spitting campaigns have been another means of centering the minds of the people on health conservation. These included the use of special literature, posters, four minute speeches, and the publication of feature stories, and display advertising in the newspapers. The recent epidemic of influenza presented another excellent opportunity for imparting invaluable health information, especially advice concerning the after-care of influenza. Display advertising in all the large daily papers was one of the features of this campaign. A reproduction of one of the newspaper advertisements is shown. The sanatorium campaign al-

**After the "flu"
is over---**

The after effects of influenza are oftentimes more serious than the disease itself. It is highly important that those who have had influenza should take every precaution to bring their bodily resistance back to normal as quickly as possible.

After recovery the room that has been occupied during the illness should be thoroughly renovated—not with sulphur candles, formaldehyde and other so-called fumigants, but with lots of soap, water and "elbow grease."

Let in plenty of fresh air and all the sunlight possible.

After you have had influenza, your body is weakened and it is much easier for you to contract respiratory diseases such as pneumonia, bronchitis and tuberculosis.

Tuberculosis is one of the most dangerous after effects of influenza and great care should be taken to prevent the occurrence of this serious disease.

Prevent Tuberculosis

Remain in bed for several days after all fever has subsided.

Do not return to work until all symptoms have disappeared.

Make special effort to rebuild the body's resistance by taking plenty of wholesome nourishment and by keeping in the open air as much as possible.

Be sure that your sleeping room has lots of fresh air. Outdoor sleeping is even better.

Give the body more than the accustomed amount of rest.

If you cough or have purulent sputum for more than two weeks, go to your physician for a careful examination to see whether any signs of tuberculosis are present.

Tuberculosis is both preventable and curable. If detected early enough, before the disease is far advanced, it can be arrested or cured.

Don't use patent medicines.

For further information or advice, consult your physician.

Oklahoma Tuberculosis Association
Oklahoman Bldg. Oklahoma City

A reproduction of an advertisement which appeared in nine daily papers during the influenza epidemic of 1918.

ready mentioned was a most effective educational drive and every group of the population was reached in a particular manner. Other forms of health education in common use such as newspaper stories, editorials, feature stories, lectures, moving pictures, and institutes, have all been used as part of the educational program.

educational attempts of the Association. Contrary to similar publications the *Pow Wow* is quite attractive and readable. The attention given to the selection of type and preparation of layouts are noticeable in the finished product. The *Pow Wow* is always well illustrated, contains news of the health campaign in Oklahoma, and



Three panels selected from a thirty-six panel exhibit conducted by the Oklahoma Anti-Tuberculosis Association. Each panel is hand-painted, is beautifully colored, and illustrates one central idea. The slogan, "Prevent Tuberculosis," appears on each panel.

A large exhibit on tuberculosis prepared by the Association is perhaps unique in this country, in attractiveness and in the information it imparts. The exhibit consists of a series of handpainted panels, beautifully colored, each containing one picture designed to illustrate one central idea. The panel contains two or three lines of descriptive matter at the bottom, but the well planned illustration is mainly responsible for the message.

The Children Enlisted

The Modern Health Crusade movement may also be considered a part of the general educational program. Here, too, advertising was made use of, in enrolling the children in this movement and in keeping up interest. As a result of consistent publicity more than 200,000 children in the state were enrolled. This branch of the work has become so heavy that a special worker has been assigned to devote full time to school educational activities. "Rhymes for Health Crusaders," a twenty page pamphlet printed in three colors, illustrating the simple health chores and containing clever jingles for each chore, is one of the contributions of the Association to this movement.

The publication of a monthly house organ, the *Oklahoma Pow Wow*, having a wide distribution throughout the state, represents another of the

deals especially with the problems facing our local workers.

Child Welfare Activities

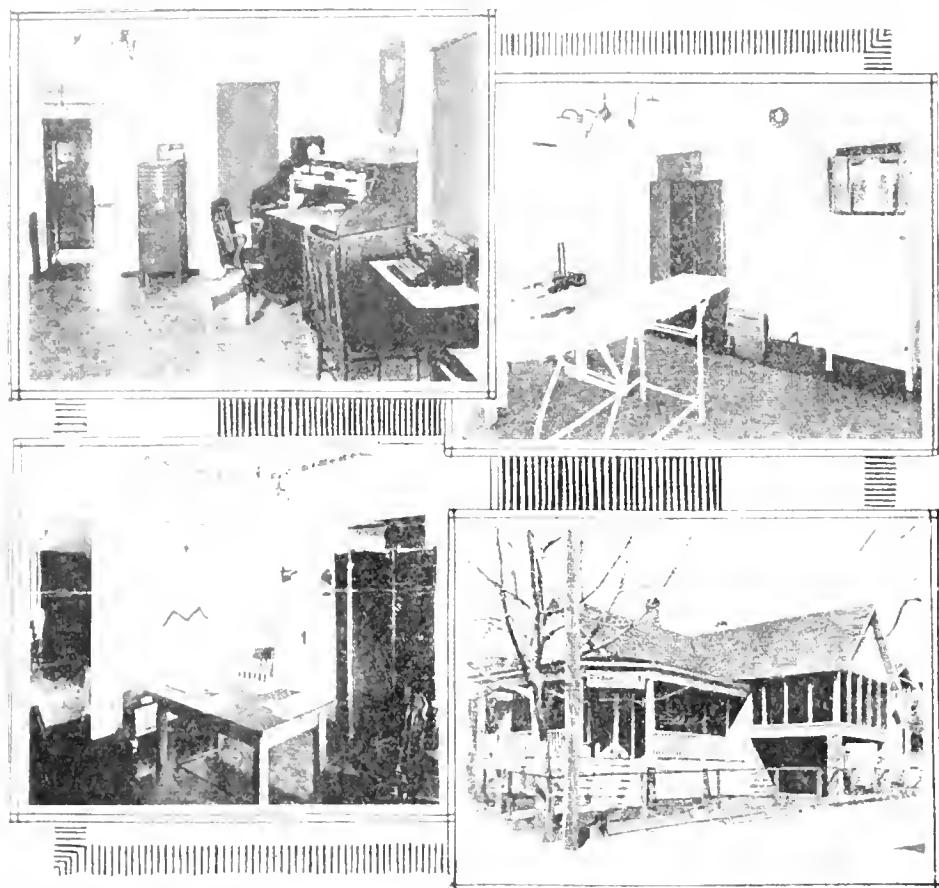
At least two efforts, the infant welfare campaign and public health surveys, have received a great deal of the Association's attention which may be challenged by some as having little or no bearing on the anti-tuberculosis campaign.

The child welfare work carried on during the summer of 1919 will be continued until cool weather sets in, and resumed early in the spring. This work is in the nature of a demonstration, only a month being spent in a county. The original plan was to have at least three nurses on our staff giving full time to this work, but up to the present time only one nurse has been secured.

The routine followed in arranging for these baby conferences is simple and effective. Two or three weeks before the infant welfare nurse is expected in the county, a member of the field staff of the state Association visits the county and organizes local arrangement committees. With the help of these committees a suitable location for the demonstration is selected, the services of local physicians are enlisted, and funds are obtained to defray the living expenses of the nurse. About a week before the first conference this local committee begins advertising in the newspapers, and

at the same time sends out a double post card to all mothers in the vicinity. The names of the mothers are obtained from the local registrar of vital statistics, and also from the members of the committee who generally have personal acquaintance with the mothers. In this post card the mother is told of the baby conferences and is asked to sign and mail the return card if she de-

foods, and pasteurization of milk. In addition to a very complete set of attractive exhibit panels which bedeck the walls of the examination, demonstration, and waiting rooms, there are numerous models which portray the lessons in a graphic manner. An inexpensive bed where the baby can sleep alone and be thoroughly protected against flies has been especially prepared for



Views of the office, examining room, waiting room, and exterior of the tuberculosis dispensary maintained by the Tulsa Tuberculosis Association.

sires to have her baby examined. Upon receipt of this return card by the local committee an appointment card is mailed to the mother, and she is advised on what day to bring her baby to the clinic. This makes it possible to divide the examinations evenly over the entire period of the demonstration.

Health Demonstrations Made Interesting

On the Sunday preceding the first examination day, announcements of the examinations are made from all pulpits and from that time on publicity is carried on consistently by lantern slides in the picture theaters and distribution of attractive hand bills to each home.

The conference consists of a thorough medical examination of all babies, with demonstrations of bathing, feeding the baby, the preparation of

these demonstrations. The town furniture store exhibits a sample refrigerator; the drug store generously displays an outfit consisting of babies' toilet articles, bottles, brushes, and so on. A model exhibit containing the clothing babies should have, giving the prevailing market prices, is also displayed at the demonstrations.

Aside from participating in the examination of the babies at the demonstrations, the nurse spends a part of her time visiting babies in their homes and calling on mothers who are unable to bring their babies to the clinic for examination. In these visits the nurse has excellent opportunity to impart valuable pre-natal instruction.

A great deal of helpful literature is distributed at the demonstration. An attractive booklet containing valuable information concerning the care of babies during the first year of life has been

prepared and is being received with great enthusiasm by the mothers. This booklet, known as "My Baby," has a beautiful cover design printed in many colors and the text is illustrated in color. Accompanying the booklet a special height and weight chart for babies up to thirty-six months old has been printed. This chart allows for the insertion of the baby's weight and height so that they may be readily compared with the standards. Both pamphlet and chart are distributed in large numbers by more than one hundred registrars of vital statistics, who use them as inducements to mothers to have their babies' birth registered.

Public Health Surveys

The Association has always felt that these efforts in the saving of child life are one of the best paying investments it can make. It feels that such child welfare work may be considered good anti-tuberculosis work.

In a large measure improvement in the health of any city, state, or nation is dependent on the knowledge and understanding of the existing conditions. Reforms based on speculation and doubt are less likely to result in permanent benefits than improvements brought about by careful and scientific analysis.

As an organization vitally interested in the public health of the state of Oklahoma, the Oklahoma Tuberculosis Association ever since its inception has felt its great work was to ascertain the exact status of the factors affecting the health of communities all over the state and, with this data at hand, to attempt to arouse the state and local officials and the public at large to the importance of greater interest in the public health. The mere enactment of legislation, the expenditure of additional funds, or the employment of trained workers, is of little avail unless it is accompanied and supported by intelligent and powerful public opinion.

Analyses of Vital Statistics

Both objects have been kept in mind in conducting the public health surveys of urban Oklahoma. Even before the actual publication of the first report the benefits to the communities and state have manifested themselves in ways sufficient to convince the Association that its efforts will be well repaid.

Subjects considered in the surveys included an analysis of the vital statistics; an investigation of the water supply; the sewage disposal; a study of the methods of the collection and disposal of refuse; measures pursued for the control of the milk supply; thorough study of housing conditions; a

careful analysis of school hygiene and sanitation; inspection of foods in stores, markets, lunch rooms, and restaurants; a study of the organization and activities of the local health department; and an analysis of the city budget.

These surveys have been conducted in a thorough manner during the past two years in eight of the largest cities of the state under the direction of M. P. Horowitz of the Department of Biology and Public Health, Massachusetts Institute of Technology. They are unique in that they represent the first effort that has been made to ascertain the health conditions of a state as a whole. The publication of these reports is already in progress and will be a valuable contribution to the science of public health.

Other Activities

In conclusion it might be well to point out some of the other interests of the Association. A colored minister has been employed to give full time lecturing among the negroes of the state. A nurse who has spent a great many years among the Indians is being engaged to give her efforts to the health work in the Indian schools on the reservation. A medical field secretary, who is a specialist in the diagnosis of tuberculosis, will be employed to act as consultant to the physicians of the state.

Every three months the Association conducts a public health nurses' conference and at these meetings, which generally extend over two days, the nurses receive considerable instruction along practical lines and are given an opportunity to discuss local problems and exchange ideas. A state public health conference for all interested in public health is held every year, and this conference is used as a means of carrying on intensive health advertising throughout the state. This conference was very well attended in 1918 and the second conference, to be held September 23 and 24, 1919, will undoubtedly be even more successful.

The officers and executive committee of the Association make up one of the most faithful and hard working groups of its kind in this country. In the state organization as well as local organizations the most prominent and influential persons give their active personal support to the Association, and much of the progress of the anti-tuberculosis campaign may be attributed to the most excellent cooperation and assistance offered by these interested persons.

FARRAND NAMES TOBEY ASSISTANT

James A. Tobey, recently connected with the New Jersey State Department of Health, has been appointed assistant to Dr. Livingston Farrand, chairman of the Central Committee of the American Red Cross.

FRAMINGHAM DEMONSTRATION REPORT

[Extracts from report of committee on appraisal for the Framingham Community Health and Tuberculosis Demonstration.]

THE officers in charge of the Demonstration have accepted what appears at present the soundest current viewpoint, that the most effective practical procedure for the control of tuberculosis lies in the development of machinery for its early detection and for the hygienic care of individuals affected or threatened with the disease—while at the same time taking such opportunities as offer to minimize the spread of the infectious agent. The first step along this line must be a determination of the actual prevalence of tuberculous infection, and this end has been accomplished with a high degree of success by the organization of medical examination drives, by the organization of a tuberculosis consultation service, and by the establishment of infant, school, industrial, and other clinics. Efforts along this line have been strikingly successful in giving us for the first time a fairly complete picture of the amount of tuberculosis actually existing in a typical American community.

The conclusion that in the medical examination drives nearly 1 per cent of the persons examined were suffering from active tuberculosis, while somewhat over 1 per cent more were arrested cases, is an important one. This finding, if assumed to be representative of the whole community and compared with the death rate for the town, would indicate a ratio of 9 or 10 active cases during the year to one reported death. The best way to estimate this factor would, in our judgment, be to compare the number of active cases under observation during a given year with the number of deaths occurring among that group of cases. The actual experience of the Demonstration has been that two hospital beds have been required for each reported death; but the period is too short and the number too small to warrant far reaching deductions. Furthermore, it should be noted that it would have been difficult to fill this indicated ratio of beds without the effective machinery for locating cases at the disposal of the Demonstration. On a basis of the active advanced cases in which the need for hospitalization was most acute, the ratio indicated by the Framingham experience would be nearer one bed to each reported death. The careful analysis of death certificates showing that the actual deaths from tuberculosis in Framingham were 22 per cent in excess of the reported deaths from this disease also constitutes a valuable contribution, although the small number of cases involved makes it impossible to apply this conclusion in any general way.

In connection with the problem of diagnosis, the officers of the Demonstration have prepared a scheme of diagnostic standards for tuberculosis which has attracted wide attention. Most important of all the practical contributions made by the Demonstration is the working out of a plan for medical consultation service which is clearly the most promising means yet devised for securing a reasonably complete knowledge of the amount of tuberculosis existing in a given community. This work has been carried on by Dr. P. C. Bartlett with admirable scientific skill and exceptional tact and judgment. The physicians of the community almost without exception avail themselves freely of this service and, aside from the direct results in the detection of early and doubtful cases, the stimulating effect upon the local medical profession constitutes an invaluable service to the cause of public health in Framingham. The consultation service plan has attracted wide attention throughout the country and under the auspices

of the State Department of Health and the State Tuberculosis League such a service has been offered for three months in the Cape Cod district of Massachusetts with great success. The plan is already in operation, or is proposed, in sections of Illinois, New York, Ohio, Oklahoma, Vermont, and Wisconsin.

The success of this organized campaign for the discovery of tuberculosis is indicated by the fact that nearly 200 cases are now under observation in Framingham as compared with 27 at the beginning of the Demonstration, and it is particularly encouraging to note that during the first year 42 per cent of the new reported cases were of an advanced type, while in the second year only 16 per cent of the cases were advanced, and in the first five months of 1919 only 23 per cent.

The machinery adopted for the treatment of cases of tuberculosis after they have been discovered has been modeled along generally accepted lines, involving sanatorium treatment, or hygienic advice furnished through the service of a public health nurse, as circumstances may dictate in the individual case. There has been nothing here that is particularly novel, but the work has been accomplished efficiently and successfully along the lines indicated by the best current practice.

* * * *

The object of the gift made by the Metropolitan Life Insurance Co. to the National Tuberculosis Association was not, as we understand it, primarily to benefit Framingham or any other local community, but to determine the practicability of the control of tuberculosis by the full application of the best known methods. The really important question before your Committee is not, therefore, the extent to which Framingham has benefited by the development of an admirable scheme of local health organization, but the degree to which this organization has been effective in controlling tuberculosis. Success along this line might obviously be measured in two ways, by a decrease in new cases, or by a decrease in the tuberculosis mortality. With the progress of the Demonstration and the improvement of machinery for finding early cases, the recorded morbidity at first materially increased; but it is interesting to notice that during the first five months of 1919 only 40 new cases came to light, as against 55 new cases for the corresponding months of 1918. Obviously, however, no conclusions can be drawn from this isolated comparison. From the standpoint of mortality, the tuberculosis death rate, after eliminating non-residents, and adding deaths of residents occurring outside of the town, has fallen from 93 per 100,000 in 1917 to 79 in 1918, and to a rate corresponding to 76 for the first five months of 1919. This is an encouraging showing, in view of the fact that the tuberculosis death rate in similar Massachusetts communities has in general materially increased; but again the period is so short and the actual number of deaths so small that no reliable conclusions can be drawn.

The member of your committee representing statistics (E. T. S.) has prepared a computation of the probable errors involved in the problem and concludes after fitting the rates for 1917-1916 to the curve of probable error, and allowing for mean error in any given rate projected for 1919-1923, that in order to warrant reasonably safe conclusions one or the other of the following combinations of tuberculosis death rates must be reached during the latter period: A rate of 30 or less for any 1 year; a rate of 45 or less for any 2 years; a rate of 60 or less for any 3 years; a rate of 75 or less for any 4 years; a rate of 90 or less for all 5 years.

It is obvious that rates between 70 and 80 for 1918 and 1919 cannot possibly be considered as significant, and it could scarcely have been expected in dealing with a disease of the nature of tuberculosis that any conclusive results could be reached in a period so short as three years.

* * * *

It seems clear that if the Framingham Demonstration should cease on January 1, 1920, the local community will have benefited materially and many important contributions will have been made to the practical control of tuberculosis; but that the main question for which the Demonstration was endowed will remain unanswered. In the judgment of your Committee this would be a most unfortunate contingency. Our best authorities on tuberculosis have been subject during the past few years to a growing skepticism in regard to the adequacy of methods which have been advocated for the control of this disease and have turned eagerly to the Framingham Demonstration as the first real opportunity to set their doubts at rest. If the Experiment should be abandoned at this time it would be necessary to begin all over again somewhere else, for a test of the best methods now available is absolutely essential for future progress in this field.

If on the other hand it should be possible to continue the Demonstration for a sufficient period to yield results of statistical accuracy, your Committee feels confident that the question as to the soundness of the current anti-tuberculosis program will be definitely answered one way or the other. The foundation has been well laid; a program for the control of tuberculosis by early diagnosis and hygienic care has been organized on ideal lines; local sentiment both in medical and lay circles has been successfully developed in support of the campaign; and all conditions are favorable to its success. Given a sufficient period for the continuance of the Demonstration and for the study of the results obtained, both morbidity and mortality records should furnish a clear answer to the question of whether or not such a program is effective.

In addition to the fundamental conclusion as to the practicability of the control of tuberculosis by the methods used in Framingham, a continuation of the Demonstration should throw important light upon the theoretic factors which contribute to the development of tuberculosis as a disease, and should therefore make it possible to modify our program along more purposeful lines in the future.

The investigations made at Framingham have as yet led to no far reaching conclusions in regard to these factors. The most suggestive point that has been brought out is perhaps the variation in disease incidence among different race stocks. The combination of a very high proportion of tuberculin reactions with a low mortality among Italians and the precisely opposite condition among persons of Irish race stock is of considerable significance. The study of the subsequent history of the large number of arrested cases now under the observation of the Demonstration constitutes, in itself, an invaluable opportunity to determine some of the factors which convert latent into active disease.

In the continuation of the work of the Demonstration, we would urge that special attention be paid to the intensive study of environmental conditions, in the home, the factory, and the community, with a view to throwing more light than has yet been obtained upon the possible effect of each condition upon the spread of tuberculous infection and the development of active disease. We are inclined to believe that the detailed study of even a few hundred cases should yield results of real value in this connection—if correlated with observation of the en-

vironmental conditions surrounding a properly selected control group of families free from tuberculosis.

* * * *

The statistical calculations cited above have led us to the conclusion that the Framingham Demonstration should be continued for a period of at least five years in order to render the attainment of definite results of reasonable certainty. It is, of course, possible that the prolongation of the Demonstration experiment through 1922 might be accompanied by a tuberculosis death rate of 60 or less for all of the 3 years involved; but since a death rate of 60 corresponds to only 12 deaths, it is obvious that a chance combination of circumstances might easily interfere with such a result. In this contingency we should once more face the possibility that a large sum of money had been spent without the attainment of the primary object in view.

The effect of such an experiment should be cumulative, and each year added to its life greatly increases the chances of ultimate success. A five-year period should, we believe, yield results reasonably certain to answer the question as to the practicability of the control of tuberculosis. If successful, it would furnish for the first time a definitely established working program for the practical control of tuberculosis. If unsuccessful, it would indicate with equal clearness the need for the adoption of measures of a different sort from those that have recently been recommended as adequate and necessary.

* * * *

(1) Your Committee feels that the work of the Framingham Community Health and Tuberculosis Demonstration during the past three years is worthy of high praise. It has organized and carried out a community plan for the control of tuberculosis along the lines indicated by the best modern scientific knowledge. It has given us the first reliable information as to the actual amount of tuberculous present in a typical American community; and in the organization of a tuberculosis consultation service it has made a contribution of the first magnitude to the machinery of public health protection. In addition, it has stimulated the development of the general public health campaign in Framingham to a degree that goes far toward realizing the highest ideals of modern sanitary science.

(2) The Demonstration has not furnished an answer to the primary question as to the practicability of the control of tuberculosis, because the period of three years was necessarily too short to make a conclusive answer to this question possible.

The results thus far obtained are as promising as could be expected under existing circumstances but an extension of the work for a period of five years more will be necessary in order to insure with reasonable certainty a satisfactory answer to this question.

(3) Your Committee, therefore, recommend that a further appropriation of \$100,000 should, if possible, be obtained for the continuance of the Demonstration experiment along the general lines indicated in the body of its report.

Committee on Appraisal

Allan J. McLaughlin. Chairman.	H. R. M. Landis. George J. Nelbach.
Lawrason Brown.	Helena Stewart.
Charles V. Chapin.	Thomas A. Storey.
S. McC. Hamill.	Edgar T. Sydenstricker.
Louis Hamman.	C.-E. A. Winslow, Secretary.
Emery R. Hayhurst.	
Victor Heiser.	

HEALTH CENTER FOR WOMEN AND GIRLS OF NEW YORK CITY

By FLORENCE MEREDITH, M.D., Director, New York City

The Health Center was established in July, 1919, with the object of conservation of health among women and girls. We have gone one step further even than prevention of disease by emphasizing the maintaining of health, a positive thing, rather than the avoidance of disease, a negative thing. We deal with individuals entirely, by means of a complete physical examination, prescribed rules for the individual girl's health, prescribed exercise to promote general health, to bring about good posture, strong feet, symmetrical development, and free circulation, and definitely to prevent such minor but significant maladies as constipation and dysmenorrhea. We also prescribe and provide facilities for suitable recreation planned to suit individual needs.

The public can be interested in public hygiene and in such forms of individual hygiene as are carried out among babies and children. Adults, however, have had largely to put up with the interest of the medical profession in their individual cases only when they had fallen ill, and this often through wrong ways of living. We are trying to prove that well people are not so heedless of health that they can not be interested to learn to live right and keep well as doctors have supposed; and that the time and money and effort spent in this teaching of personal hygiene are profitable both from the point of view of individual wellbeing, and social and economic prosperity.

We are experimenting for the first time with the great problem of health education in its individual application among adults. Any woman who works in any line is examined and advised free of charge. We are teaching them that unless they feel entirely fit, free from big or little discomforts, not only living along but getting joy out of living, unless they have a body to be proud of, yes, even unless they are good to look at, their health is not what it should be, and this is probably due not so much to their heredity or their environment as to their individual habits of living.

Once they have acquired this point of view,—that a good deal of their health is entirely their own responsibility and that, even if perfect health is not possible, they should at least endeavor to attain their own maximum,—we find them eager to follow the advice given. They are given report cards and required to indicate from week to week whether they have done what was recommended. They have cooperated, without exception to their own advantage. This proves to our satisfaction that the public is ready for health education, and that it is the duty of the medical profession to supply it.

THE PUBLIC HEALTH NURSE

The August issue of the *Public Health Nurse* is the annual report number. It sets out the general aims of the National Organization for Public Health Nursing, discusses reports of the several committees' achievements during 1918, and outlines the program for 1919. Perhaps the most important activity of the Organization is their efforts toward establishing improved public health nursing standards and in providing educational courses calculated to furnish an increased supply of qualified executives and teachers and staff workers. The formulation of standards is a matter of extreme difficulty and will be satisfactorily arrived at only by the concerted efforts of trained workers and by a comparative study of their surveys. Cooperation, centralized organization, and stand-

ardized training of workers will go far toward making this possible. Other contributions in this issue are as follows: "Is a Visiting Nurse a Public Health Nurse?" by Elizabeth G. Fox; "Work of the Public Health Nurse in Italy," by Mary S. Gardner; and "Study of Public Health Nursing in Westchester County," by Zoe La Forge.

INFLUENZA MORTALITY AMONG WAGE EARNERS AND THEIR FAMILIES

The statistical methods employed by the life insurance companies in many regards furnish the best perspective available on the more prevalent diseases. A most valuable contribution of this character is the recent contribution by Lee K. Frankel and Louis I. Dublin, of the Metropolitan Life Insurance Co., published under the above title in the October issue of the *American Journal of Public Health*. From many quarters much discussion of the influenza epidemic of last year is being published, some of it based on accurate observation, some of it speculative, but none of it deduced from so large a number of cases as are considered in this contribution. The deductions are based from 105,552 policy claims paid among over 12,000,000 policyholders, representing a total of 70,729 deaths from influenza-pneumonia. On the basis of death rates per 100,000 years of life from influenza-pneumonia norms of incidence are established upon which are calculated the percentage rates during the recent epidemic. Classification is made according to sex, race, age periods, and geographic distribution. Comparison is made between these rates and death rates during the same period from non-influenza causes. It is pointed out that these results are not conclusive as a longer period will be necessary to adduce data as to complications following the epidemic, and increased death rates in such disorders as Bright's disease which may be consequent upon the epidemic. Later reports of the further analysis of these data will be awaited with interest.

THE PUBLIC HEALTH JOURNAL

The September number of *The Public Health Journal* contains the presidential address of D. L. Cruikshank, M.D., of Windsor, Ont., before the Medical Officers of Health of Ontario. Without minimizing the importance of such issues as providing for the care of defectives, of instituting measures for the control of epidemics, and the proper study of the causes of diseases, Doctor Cruikshank charges the medical officer with his chief duty in explaining to the people the care of the human machine; for, when all is said, specific immunization is based upon "the self-healing power of the body." Rest, food, fresh air, and sunlight are the slogans of health.

The paper of S. E. L. Thompson argues the same defects of health administration as obtain elsewhere and his chief emphasis is placed upon the laxity of enforcement of public health laws, the need of full-time health officers, the importance of paying adequate salaries, and endowing them with the power to make their edicts effectual.

A resumé of the general policies discussed at the American Red Cross Conference at Cannes is given by Sir Arthur Newsholme in "Work of Red Cross Organizations in Relation to the Preventive Medicine of the Future."

Other articles are as follows: "Some Opportunities for Health Service from a Volunteer's Point of View," by Miss Helen R. Y. Reid; "A Plan for a More Effective Federal and State Health Administration," by Frederick L. Hoffman; and "A Preliminary Study in the Bacteriology of Jellied Meat," by J. A. Allen.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., Editor

MEDICAL CARE OF STUDENTS

MODERN MEDICINE publishes in this issue two articles on medical and health service for students in Columbia University and Tuskegee Institute. These supplement the articles in the October issue on the medical service of the University of Wisconsin, and the state-wide service of the University of Iowa. Additional articles on this kind of service will appear with some regularity in this magazine.

The subject is of paramount interest to the workers in preventive medicine, to the physicians as a step in cooperative group medicine, and to the sociologists as a means of protecting and conserving human powers and talents.

Judged from the point of view of the individual student, these plans for medical service make good insurance for him. It is much better to pay a definite fee, where a fee is required, and be certain that whether sickness comes in light or serious form his medical care is already provided for, rather than that he should bear the uncertainty and expense of an extended illness.

Not infrequently students, especially those who are working their way through college, are handicapped for years and perhaps prevented from completing their education by the burdens of a single sickness. The payment of five, six, or ten dollars a year by all students in a large group gives an insurance against any sickness no matter how extensive. From the standpoint of the physician this service gives a unique opportunity for organization for tending and preventing sickness *en masse* on a social basis. It also gives the opportunity for group practice and enables the development of 100 per cent medical service to a whole student body.

To the sociologists this service must make an appeal because of its conservation of educated talent. By the time students reach the college

or university there is a large investment of money in each student. There is also a development of talent which has been carefully selected and nourished.

The best interests of society are conserved by education, and education cannot be efficient in its results without physical and mental powers. The adoption by colleges and universities as well as secondary schools of the plan to give complete medical and health care to all of their students, should encourage us to look forward to a new era in the development of human power and talents. The ideal, as expressed by Doctor McCastline, University Medical Officer at Columbia, "does not differ, perhaps from the object of health service of other institutions throughout the country. It is so to organize our service that it will be possible for the student to gain a knowledge of his physical characteristics, of any tendencies toward, or immediate conditions of ill health. During the time that he is at the university we attempt to determine his physical defects and deviations from a reasonable health standard, to correct these conditions where possible, and to assist the student to develop habits of exercise, rest, and recreation as will make him as normal mentally and as efficient physically as it is possible with his inheritance."

"All men are not born with physical powers of equal strength, with like endurance under pressure, with the same resistance to communicable diseases, with like speed and accuracy of muscular coordination. . . . It is only by the observation and study of the individual that we are able to time him and to regulate his periods of work and recreation so that he may reach the pinnacle of his efficiency as a constructive worker in society and, while giving out his 100 per cent of work, also enjoy happiness through health and its attendant enthusiasm."

EDITOR.

DR. CHARLES A. PROSSER

DR. CHARLES A. PROSSER has resigned as director of the Federal Board of Vocational Education to assume his former position as director of the Dunwoody Institute of Minneapolis.



Dr. C. A. Prosser, Director, Federal Board of Vocational Education.

lis. In his departure from the Federal service the country suffers a distinct loss.

Doctor Prosser had done many noteworthy services in the cause of the common man before the war, but his greatest service has been since the war began in planning and organizing the work of vocational rehabilitation for the Federal government which is now putting wounded men back on their own independent feet as working members of the community. Before men were scarcely more than dreaming of the possibilities of vocational reconstruction, Doctor Prosser was formulating plans for Congress to take care of the injured men on their way back to employment. The law was passed, the experience of the warring nations was gathered, the entire Canadian process of reconstruction was studied personally by Doctor Prosser, and an administrative organization was built up throughout the country to meet the emergencies which war might throw upon it. In no branch of the Federal service was the work or organization performed with a clearer vision of the end in view.

The early closing of the war, happily, made unnecessary some of the plans originally formed; but the growing humanitarianism of the country

caused a broadening of the existing program. To-day the larger part of the wounded have been examined and those entitled to re-education have been placed in schools.

The task has been a difficult one. The program was new, with no American experience behind it. The demagogues were at hand to make the wounded discontented. The politicians carped, and then scuttled. Jealous departments and bureaus threw obstacles in the way; and yet, the idea of sound rehabilitation prevailed.

Few men served the country more constructively in difficult work than Doctor Prosser, and the work he did has laid the foundation for a new movement of far reaching power for good,—the rehabilitation of cripples in industrial and civilian life.

MENTAL CLINICS IN UTAH CITIES

The establishment of a series of mental clinics in the various cities in the state of Utah this winter is being planned by the Utah State Board of Insanity. Next summer the work will be extended to the outlying sections. The plan is based on the theory that early attention to mental and nervous disturbances will prevent conditions which may necessitate commitment to an asylum. A complete census of the feeble-minded of the state will be taken. Psychologists of the University of Utah will assist both in the clinics and in the survey.

TUBERCULOSIS SURVEY AT SARANAC LAKE

A tuberculosis survey of the residents of Saranac Lake, N. Y., conducted under the auspices of the Edward L. Trudeau Foundation, bears out what progressive health officers and sanitarians have repeatedly urged—that there is a minimum of danger of infection of healthy adult residents of resorts frequented by tuberculous patients. According to the weekly report of the United States Public Health Service, the Saranac survey showed that indigenous morbidity and mortality from tuberculosis are low, only 0.3 of 1 per cent of the living cases being found among the native born, and 0.9 of 1 per cent among previously healthy residents. This is in accord with investigations in other places and should be of assistance in overcoming unreasonable prejudices regarding alleged dangers from proximity to tuberculosis sanatoriums.

REGIONAL TUBERCULOSIS SECRETARY

Mr. Arthur J. Strawson has been appointed by the National Tuberculosis Association as Regional Secretary for the Mississippi Valley district. The district comprises the eleven states included in the Mississippi Valley Conference on Tuberculosis. He assumed his duties on August 1, and opened the district office, 627 Pythian building, Indianapolis, Ind. Mr. Strawson was executive secretary of the Indiana Tuberculosis Association for two years and prior to that was with the Illinois State Tuberculosis Association. For the past eighteen months he has been in the Home Service Department of the American Red Cross. The appointment of Mr. Strawson occasions the statement by his associates that he will be able to give valuable service to the coordination of the work within his territory.

COLUMBIA UNIVERSITY HEALTH SERVICE

BY WILLIAM H. McCASTLINE, M.D., UNIVERSITY MEDICAL OFFICER, COLUMBIA UNIVERSITY, NEW YORK

THE HEALTH service at Columbia University was instituted in the spring of 1912. Until this time there was no organized department definitely responsible for this important phase of medical work. The department of physical education was carrying on a constructive program of health education among those who were compelled to take gymnastic courses and athletics. These men were carefully examined and were given programs of exercise, etc., to meet their needs. The physicians in the department treated, also, all emergencies and accidents that occurred in the gymnasium and on the athletic field; but no attempt was made to treat the diseases of students of the University. President Butler felt that the University's duty did not begin and end with its academic and social activities, but that the University should do all in its power to keep its students efficient through health while at the institution, and should create, during the period of academic training, such a regard for health that the students would cherish it as a part of their university experience and live and work in such a manner after they had gone out into their chosen fields of activity as to maintain through health their physical and intellectual efficiency.

Conserves Potential Workers

In the spring of 1912 this new department for health service was organized with the object of giving the students the opportunity to put themselves under medical supervision and treatment when necessary. The University Medical Officer gave his full time to studying the individual health problems of the students. Every effort was made to divorce the medical supervision from the undesirable attributes of an institutional organization. In choosing a site for the office and in furnishing it an effort was made to develop a setting that would make the student forget that he was being treated as a member of a large insti-

A SOUND MIND IN A SOUND BODY

The Health Scheme at Columbia contemplates giving the graduate a stamp of physical health and efficiency in keeping with the standards of education upheld by the University.

No student is graduated without fulfilling the compulsory credits in physical education.

On the basis of four years of medical supervision, with a complete annual physical examination, his margin of safety as to work, rest and recreation is determined. The student is thereby fitted to live and work so as to maintain his health and intellectual efficiency.

puny, sickly body was considered a perfectly normal heritage for a trained intellect; but now the man with a body below par is at a distinct disadvantage in the race for success in any field of work. The universities of the country stand as an investment for the equipment of men with trained minds to fill the positions in the fields of government, finance, and business, where initiative and endurance are the "take-offs" or the foundation qualities that advance civilization and bring added happiness to the world. It is a poor investment to put so much valuable material at the command of any student, if at the same time we are not preparing, in a scientific way, his physical body so that he may have at the completion of his college or university training sufficient health and physical vigor to carry the weight of his responsibilities as a skilled worker.

There is still another aspect to this health problem. Given the opportunity to judge a problem, or to initiate a professional, political, or business project: unless the one who undertakes it is in good health, the degree of his success will be limited and tinted by his lack of energy, by his myopic or astigmatic outlook, made less effective because of ill health. These facts and many more have become evident to the men who make a business of education. At Columbia we are endeavoring to put into operation a scheme that will give the graduate a stamp of physical health and efficiency that will be in keeping with the standards of education upheld by the University.

The object, therefore, that we have set for

tution. The object was rather to make him feel that he was in the office of his private physician.

The university students are potential workers destined to occupy important positions in the business, professional, and political life of our country and no effort is too great nor any financial outlay too large to make them a healthy, strong, energetic, well trained physical and mental force.

The time was when a

ourselves at Columbia does not differ perhaps from the object of the health service of other institutions throughout the country. It is to so organize our service that it will be possible for the student to gain a knowledge of his physical characteristics, of any tendencies toward or im-



In Earl Hall is the centralized health department which acts as a clearing house of all matters concerning the health of the student life at Columbia University.

mediate conditions of ill health. During the time that he is at the University, we attempt to determine his physical defects and deviations from a reasonable health standard, to correct these conditions when possible, and to assist the student to develop habits of exercise, rest, and recreation that will make him as normal mentally and as efficient physically as it is possible with his inheritance.

All men are not born with physical powers of equal strength, with like endurance under pressure, with the same resistance to the communicable diseases, with like speed and accuracy of muscular coordination, similar temperaments, etc. Their physical characteristics are as varied and as numerous as the individuals themselves. It is only by the observation and study of the individual that we are able to time him and to regulate his periods of work and recreation so that he may reach the pinnacle of his efficiency as a constructive worker in society and, while giving out his 100 per cent of work, also enjoy happiness through health and its attendant enthusiasm.

Future Health Requirements

At Columbia University we have a staff of physicians and nurses to treat ambulatory illnesses. The University maintains this service free of cost to the student. It is supported by a yearly budget maintained by the trustees. It is our hope, however, that we may be able to raise an endowment fund for the support of the health work.

There is no more important branch of preventive medicine and no more important phase of university endeavor than this work which aims to develop health in the individual by curing, as far as possible, acute and latent disease; to help the student to realize and measure his physical limitations; and to find for himself health and physical comfort.

The treatment of acute and chronic diseases, of emergencies and of convalescent cases is carried on for all university students who wish to take advantage of the privilege. We aim to make the students appreciate the necessity of early treatment and the importance of a thorough physical examination when any condition arises that seems to be a deviation from the normal or usual state of health. During the past seven years, thousands of students have made use of the opportunity afforded by the University to obtain medical advice and treatment. In the university office on the campus alone, during the past three years, from ten to twelve thousand medical consultations have been held annually without expense of the students.

The type of medical work that we are developing at Columbia is along the lines of constructive preventive medicine that considers not only the diagnosis and treatment of the immediate illness, but seeks to take into account present and future difficulties and to foresee their bearing upon the student's health and success. We take into consideration the general state of health and phys-



The waiting room in the Health Department at Columbia University accommodates twenty-five people. At one end of the room is the office of the secretary who handles all questions and requests, makes all appointments, and attends to all the records of the department.

ical make-up of the patient; the importance of his responsibilities as a student so that he may not lose any more time than is necessary; the type and character of his work in its bearing upon his present and future health. We seek to prevent

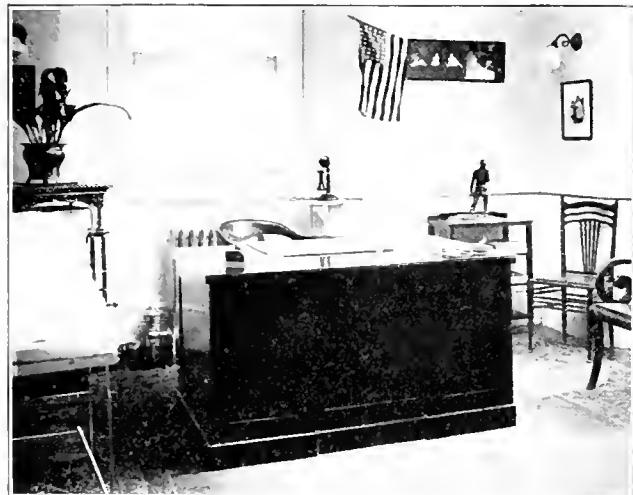
any sequelae or any permanent handicaps that might result from the treatment of symptoms without the removal, in so far as possible, of the cause of the student's illness. If from a medical standpoint our services are to be of value to the man who plans a life of useful activity, we must consider all of these points and many more. The reason that society today is wearing a coat of many colors, cut, fitted, and tailored by quackery and "isms," is that physicians of scientific training have not yet given enough thought to the future experiences of the patient while treating his immediate illness.

If we can educate men and women to appreciate the importance of health and to recognize the part played by scientific constructive medical practice in reaching this goal, we will do for society more than law can accomplish in protecting the people of our commonwealth from being duped by quacks and superstition.

Essentials in Health Supervision

In developing our health service work at Columbia, we have attempted to keep in mind the following vital points:

- (a) The right of our students to select their own physicians for medical and surgical treatment.
- (b) The rights and privileges of the private physicians in the vicinity of the University campus.
- (c) The economic waste of duplicating



The consultation rooms of the Health Officer create the atmosphere of privacy so desirable if the student is to feel free to avail himself of the privileges of the all round medical care provided at Columbia University.

equipment, etc., that can be used in an organization of this kind and that is already effectively working.

- (d) The value of so organizing the scheme that it will bring into play all available

sources of assistance that will make the organization complete and easy of operation.

(e) The elimination of red tape in the office administration.

(f) The consideration of all data collected in the office of the University physician as



The nurses' office and general conference room at Columbia University opens with four examining rooms, an arrangement which makes possible the expeditious handling of several patients at once.

strictly private and under the absolute control of the physician in chief.

(g) The use of the student body as a co-operative community to develop sanitary conditions that will assist in maintaining health.

(h) The making of the individual the center of our intensive study rather than the student body as a whole, since group regulation is of secondary importance if the individual can be controlled.

(i) The importance of faculty cooperation in assisting in this program of individual health promotion.

(j) The development of a type of medical supervision that will appeal to the student so that he will continue to apply the principles of preventive medicine to his life after leaving the University.

Conditions Peculiar to Columbia

We have had in mind also the fact that Columbia University is situated in the center of a great metropolis. Our 20,000 students live scattered over an area whose radius is from twenty-five to fifty miles from the campus. Our dormitories accommodate only a small proportion of our students; hundreds live in private families, in hotels and boarding houses; hundreds live at home. We must meet these conditions effectively rather than attempt to follow a scheme of organization found successful in the colleges and universities situated in small towns or in the suburbs of large cities.

With an attempt to meet these conditions, Columbia's organization is as follows: On the first floor of Earl Hall, one of the most attractive and centrally located buildings on the campus, we have equipped a suite of rooms for the University Medical Officer. The suite consists of a large, bright, sunny, well ventilated reception room, accommodating about twenty-five people. The room is large enough to permit of plenty of space between the chairs so that it is not necessary for a patient to be in close contact with his neighbor. This room is furnished attractively with hard wood and smooth leather, so that it may be easily cleaned and kept free from dust. At one end of the room is the office of the department secretary. The secretary's office acts as a clearing house for the questions and requests of the students, members of the faculty, and outsiders. A record of all requests, suggestions, and complaints regarding individuals, sanitary conditions of buildings, etc., on and off of the campus, community problems, etc., is kept and brought to the notice of the University Medical Officer. The secretary makes all appointments for special examinations, and attends to the correspondence and records of the department.

The medical work is carried on in a suite of eight rooms. The nurses' office and general conference room opens into four examining rooms; two set aside for general examinations, a third for dental examinations, and a fourth for the examination of the eyes, ears, nose, and throat. The other three rooms are equipped for medical and surgical treatments, including special equipment for the treatment of the eyes, ears, nose, and throat. This arrangement makes it possible to handle several cases at once. In these offices we have a staff of three physicians and two trained nurses. This is the medical center for the treatment of all university students, exclusive of Barnard and Teachers' College students.

Provision for Women Students

At Barnard, the women's college of the University, we have a second medical center in Students Hall. This building is the social center of Barnard College and contains a gymnasium, special exercise rooms, a swimming pool, rest room, social rooms, studies, and a large restaurant.

On the second floor of this building, the health service department has a well equipped office for the care of the women students of Barnard College. The office suite consists of a reception room, a nurse's room, three private dressing booths, a physician's office equipped for examinations and treatments, also a well equipped room for the minor surgical treatments and for the examina-

tion and treatment of the eyes, ears, nose, and throat. Office hours are held daily and a careful scheme of health supervision of the Bardard students is carried on by a woman physician and one nurse. The plan of work is essentially that which will be described for the men.

In each one of our dormitories we maintain an infirmary for the treatment of illnesses occurring among the residents of the respective dormitories. In each of the women's dormitories we have a resident trained nurse.

The Handling of Cases

When a student reports to the university medical office for treatment, he fills in a numbered



Two of the examining rooms at the Columbia University are set aside for special examination, one for dental cases, and the other for examinations of the eyes, ears, nose and throat. This corner pictures a nose and throat unit.

yellow slip, giving his name, his address, the school of the University in which he is registered, and, briefly, the object of his visit. These slips are deposited at the secretary's desk and the patients are called in numerical order, except in cases of emergency or of severe illness when they are seen immediately by one of the physicians. This method insures each patient a definite place among those waiting and he may, if not too ill, busy himself with his writing or studying, knowing that when the time comes for his treatment or conference, he will be summoned. The morning hours, from 9:30 until 12:30, are given over to general office practice. The afternoon hours, from three until six are set aside for the exami-

nation and treatment of special cases and for appointment work that would take too long for the general office hour. From nine until six someone is always on call in the office for emergencies. All medical work done in the office is free to the students. Up to the present time no charge has been made for bandages, plaster, laboratory tests, etc., or for medicines given to students at the office. When drugs are necessary in the routine treatment of cases, these drugs are prescribed and the prescriptions filled at any drug store that the patient may elect.

The University Medical Officer has the privilege of sending students to the Vanderbilt Clinic for diagnosis and treatment, when for some reason the patient cannot be handled satisfactorily at the university office. This is one of the largest and best equipped clinics in the city and is under the direct supervision of the College of Physicians and Surgeons, the medical school of the University.

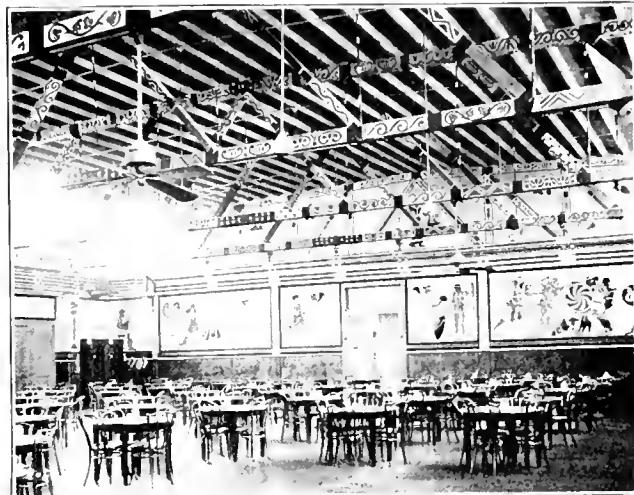
Upon the staff of advisers to the University Medical Officer are specialists in every field of medicine. These men stand ready at any time to advise the University physician on cases that fall within their special provinces.

The University does not maintain a general infirmary for bedside work. During the past seven years, experience has proved that our cases are very satisfactorily cared for in the hospitals of the city. New York City is doubtless one of the greatest hospital centers in our country, and it would be financially impossible for the University at this time to build a hospital large enough to accommodate the medical and surgical cases of a student community of over twenty thousand that would measure up to the standards of our large hospitals. Seriously ill cases are sent to the various hospitals of the city. In these institutions they have the benefit of excellent hospital organization, with laboratory service, well established nursing departments, and the careful attention of the resident medical staff and the expert supervision of the attendants.

From an economic standpoint it would be unwise for Columbia to attempt to duplicate the equipment of the excellent hospitals at our door, even if we had the financial means to do so. Our ultimate plan is to endow a Columbia pavilion in one or more of our hospitals when we can secure the gift to make it possible. If the University were not in the midst of the greatest medical center in the world, it would of course be necessary to maintain on the campus a general infirmary for bedside cases. Mild cases confined to their rooms are treated by local physicians. Through the visiting nurse the department seeks to coope-

rate with the private physicians in the care of students ill and living in the vicinity of the University.

With the facilities for early treatment and supervision at the university office, the number of



In order to make the scheme of supervision complete, the Trustees of Columbia University have taken over the University Commons. An up-to-date sanitary kitchen is provided and no effort is spared to provide the best quality of food, well cooked and well served, at a price to cover the cost, but no profit.

seriously ill cases among our students has been greatly decreased. The majority of our cases in the surgical field are for the correction of conditions in order to secure improvement in health; and the time and the place for the operation are fixed to meet the pleasure of the patient and the convenience of the surgeon. Most of our acute cases, both medical and surgical, are sent to St. Luke's hospital. The hospital property adjoins the University campus.

One phase of our work is perhaps unique and I feel is a step in the direction of real preventive medicine. With the opening of the academic year 1919-1920, all students in the undergraduate schools of the University will be placed under careful medical supervision. During the four years of their college life, a record will be kept of their physical condition, as shown through complete annual medical examinations, records of illness, grade of class room work and quality of work done in the department of physical education.

With these records as a basis for judgment, the University Medical Officer will be able to advise the student and assist him to gain a knowledge of his health condition that he could not otherwise have. Fortified with a definite knowledge of his state of health and with an understanding of his margin of safety as to work, rest, and recreation, he will with greater certainty be in a position to make the most of life as a man who is destined to success because his actions are governed by a

reasonable understanding of his physical life and his environment.

When a prospective student makes application for admission to Columbia College, he is required to file, with his credentials of scholarship, a personal history of his present and past health together with a medical examination form filled in by a doctor of medicine, preferably the family physician, after the physician has made a complete physical examination of the applicant. The report of this medical examination is filed with the University Medical Officer. If there is recorded by the examining physician any condition of importance that might handicap the applicant in his social, physical, or scholastic duties, he is required to consult the University Medical Officer before completing his registration. Thus all cases in need of immediate attention are placed under medical supervision before college duties begin.

At the beginning of the freshman year and annually thereafter as long as he is a student in Columbia College, each student will receive a complete physical examination under the supervision of the medical director of the University gymnasium. These examinations are made by a staff of physicians and are as complete and comprehensive as were the examinations for the Officers' Reserve Corps during the war. Detailed records are kept of the conditions found, tabulated in such a way as to make it possible to follow the development of the body and the state of health of the student from year to year. A photograph of each freshman is taken to record general posture and physical defects. In cases where postural defects are evident a photographic record may be made at stated intervals to show progress resulting from corrective or special gymnastic work. Copies of all these records are filed with the University Medical Officer.

All students who show abnormal conditions will be required to consult the University Medical Officer or some member of his staff. When necessary, treatments, either medical or surgical, will be given. Upon the completion of the annual examination, a card will be issued to all students who show conditions needing medical attention. The card is issued as a means of giving official notice to the parent or guardian of the student's need of treatment. The student must present this card, properly signed by parent or guardian, to the University Medical Officer within one month of the date issued, showing that the student is under the treatment of his own physician or that he desires the treatment given under the supervision of the University Medical Officer.

After acute illness, the student will be placed under medical supervision for a reasonable period

to make sure that no condition develops that might insidiously undermine his future health. Students whose scholarship falls below standards that should be maintained will be placed under medical observation and will be given special examinations to ascertain if the cause of poor scholarship is due to physical conditions. If ill health is found to be present, treatment will be instituted and the student will be given an opportunity to make good his grade.

In order to make this scheme of health supervision complete, the University Trustees have taken over the University Commons, that for many years has been leased to outside corporations. No health program of this kind can be successful unless it is possible for the students to obtain a variety of food of good quality, well-cooked, and attractively served. The Trustees have at considerable expense refurnished the kitchen and remodeled the dining room so that we now have an up-to-date sanitary kitchen and an attractive Commons. No effort will be spared to make the Commons serve the purpose for which it is maintained, that of serving to our students and patrons the best quality food, well cooked and well-served, for a price that will cover the cost without any attempt to make a profit.

As a means of keeping in touch with problems that affect the student health but which might well be overlooked by the medical staff, a student board of health has been in operation since 1912. The members of this board are appointed by the University Medical Officer and, as far as possible, every school of the University is represented.

In order to establish habits of exercise, and health of body through physical activity, the Director of the Department of Physical Education, Prof. George L. Meylan, has developed a system of physical education that will be compulsory for all students throughout the first two years of college work. Every student will be required to take part in the athletic and gymnastic work. In the fall and late spring the work will be on the athletic field; during the winter months, in the gymnasium. Students who have any physical conditions that make it impossible for them to enter into the general physical education program, will be organized in special squads or will be given individual attention. No student is graduated from Columbia College without fulfilling the compulsory credits in physical education. The instruction in hygiene is given as part of the compulsory work in physical education.

The Health Service Department and the Department of Physical Education cooperate in making the medical and hygienic supervision of the undergraduates effective.

HOW TUSKEGEE INSTITUTE IS PROMOTING BETTER HEALTH CONDITIONS IN THE SOUTH

BY JOHN A. KENNEY, MEDICAL DIRECTOR, JOHN A. ANDREW MEMORIAL HOSPITAL, TUSKEGEE INSTITUTE, ALA.

OF THE MANY departments established at Tuskegee Normal and Industrial Institute, Tuskegee, Alabama, it is doubtful if any one has proved itself of greater worth and real benefit to the community, or even to this section, than the department of health. In establishing this department in the beginning, the idea was to care for the sick students of the school; also, those of the teachers who were not connected with the school families and were housed in the dormitories. In the beginning it was necessary to educate not only the students, but the teachers to the hospital idea. This took a very long time, longer than might be supposed in an institution of this kind. For several years it was rather rare to have a teacher as an inmate of the hospital, many preferring to remain in their rooms for treatment because the name "hospital" carried with it a certain odium that was more or less repugnant to the average teacher.

A COMPLETE HEALTH UNIT

Organized to care for only the sick in the school, Tuskegee Institute now maintains annual clinical meetings for the advancement of medical science, a training school for nurses, a general hospital, free medical and surgical care for the indigent, and home nursing service.

In five years 6,828 medical cases have been treated, with a mortality of only 0.4 per cent. Surgical cases to the number of 379 were treated with a mortality of only 2 per cent. During the same period the out-patient department handled 9,532 treatments, including many minor surgical operations.

from such persons saying: "Turn my son or my daughter out of that 'horse-pittal.' "

As the idea became more popular among the teachers and the student body it was found to be a good thing to extend its benefits to our immediate community; that is, to the town of Tuskegee and then to Macon County, for the care of persons who were not officially connected with the school. This necessitated another educational effort. For a long time it was difficult even to get such people to come within the doors of the hospital, and to say to them, "remain for treat-



Nurses at work in the hospital garden of the John A. Andrew Memorial Hospital.

ment," was sometimes considered almost an insult.

We are pleased to say that these conditions now have very largely changed; but we are still engaged in the effort to educate our people to the hospital idea.

Various methods have been used to do this. One of the best, of course, is to get a patient from a certain community; give that patient the best of treatment at our disposal; get good results; convert him, and send him back home. Such a patient becomes a walking advertisement and is a means of getting a number of others from that section. This is sometimes done purely on a charity basis for some needy individual. At other times the

sult that we have never suffered for lack of material. Our Eighth Annual Clinic was held the first week in April of this year at which time we had present seventy physicians and surgeons, including a few dentists. The Clinic was divided into four departments—medical, surgical, dental, and a special clinic for eye, ear, nose, and throat diseases. At this clinic there were treated 290 patients, 40 of whom received surgical operations.

Because of the many advantages offered to the patients and to members of the profession by these annual clinics, it was decided last year to form a permanent organization and hence was formed the John A. Andrew Clinical Society with a membership of fifty-one. The object of this so-



The first Boys' Hospital, Tuskegee Institute.

opportunity arises in the regular course of hospital service.

Several years ago it was thought a good idea to hold clinics at the hospital for the purpose of giving both medical and surgical treatment to such cases as needed professional care but were unable to pay for the same. In 1912 the National Medical Association held its annual meeting at Tuskegee Institute, and it was thought that this would be an opportune time to inaugurate the clinic. Arrangements were made and the results were all that could be wished for. Fully 525 patients were treated on this occasion during the Clinic Week. These were given medical and surgical treatment. A variety of operations were performed. All of the patients recovered and went back to their individual communities, since which time we have held a clinic annually with the re-

society is to perpetuate and hold the annual clinics at our hospital and, while treating the many needy patients, to encourage the development of our physicians, surgeons and dentists by placing at their disposal the amount and variety of work these patients afforded for study, observation, and treatment.

Our hospital work had a very humble beginning when in 1892 certain rooms in one of the girls' dormitories were set aside for the female students who were sick and certain rooms in the boys' dormitories for male students who needed medical attention. A female physician was employed and a certain number of boys and girls were assigned to her to help her care for those who were sick. This was the real beginning of our hospital and of our Nurses' Training School. A little later one of the cottages on the grounds

was set aside for the purpose; in 1901, friends of the North provided funds for the erection of a two-story frame hospital building. The work continued in this until 1913 when other good friends of the North donated funds for the erection of the John A. Andrew Memorial Hospital, a modern, up-to-date, well-appointed, two-story brick building, with accommodations for sixty patients with no crowding, and for a good many more when it is necessary.

Our Nurses' Training School has kept pace with the growth of the hospital and the nurses have proved themselves a real boon to suffering humanity all through our immediate section, and practically throughout the South in different cities

distributed free of charge among the people of the community. Nurses are sent out into the homes of the needy to do district work, giving baths, cleaning up homes, preparing nourishment for the sick, and showing them how to do these things properly for themselves. By these means the Health Department of the Tuskegee Normal and Industrial Institute has grown until it has become a real factor in the social life of this section of the South.

Our nurses played their part nobly during the epidemic of influenza last fall and winter, as a number of testimonials which space will not permit us to use, would show. The following figures will show the amount of work done outside of the



The present John A. Andrew Memorial Hospital—Erected in 1913.

and towns, and in many places in the North. We have in our possession a number of communications both from and concerning our nurses which show what they are doing in private work, in institutional work, in the public health service, and in nearly every instance they are able to hold their own along with graduates from other institutions. Up to the present time we have graduated 127 nurses and a large number of undergraduates have left us with sufficient training to enable them to administer successfully to the sick and to secure constant remunerative employment.

It is our purpose as far as possible to make the Institute Hospital the health center not only of the school but of this community and, with that object in view, from time to time health talks and demonstrations are given by members of the hospital staff both at the hospital and at appointed places in the community. At frequent intervals literature bearing on health conditions and giving simple rules for health betterment is printed and

hospital by the nurses from September 1, 1918, to June 1, 1919, and reveal the great demand for their services and the fact that they fill a much needed want in this section: Thirty-seven nurses served 1,061 days in 104 homes in twenty-six towns.

As an index of the amount of work that is being done at this hospital, note the following extract from a report of the medical director made at the Second Annual Meeting of the John A. Andrew Clinical Society in April at which time the Trustees of the School were present:

"In the past five years, we have treated in the wards of the John A. Andrew Memorial Hospital, 6,828 cases. Of this number 379 received surgical operations. While we do not believe the mortality rate of a hospital is the exact index of the work, yet at the same time it is a customary method of measuring a hospital's efficiency. Out of a total of 6,828 cases treated in the past five years in our wards and private rooms, we have lost 28 patients. Among our operative patients

from a total of 379, we have lost 8. During the influenza epidemic we had in our wards 449 cases of influenza with 32 cases of pneumonia. We did not lose a case of influenza and only one

of pneumonia. In the out-patient department during the past five years up to 1918-19, we have given 9,532 treatments which included many minor operations."

THE WORK OF THE VISITING HOUSEKEEPER

BY EVA K. MARKMAN, R.N., JEWISH AID SOCIETY, CHICAGO

"VISITING housekeeping! What is it?" I asked when the suggestion came that there was an opening for work of this nature at the Jewish Aid Society. "It's hard work," came the response, "but combined with your experience as a visiting nurse, you can develop its various phases as you see fit."

After two and a half years of pioneering work as an instructive visiting housekeeper, it is still difficult to state our aims. Each new case brings new problems; the instructing visiting housekeeper goes to the home primarily to improve existing conditions and to raise the standard of housekeeping, the idea being that when cleaner homes are the rule and better methods of housekeeping are adopted, we will have better mothers and healthier babies.

The first lesson firmly impressed upon the mothers is that the home is for protection; that a successful mother implies that she must be more than a good cook and seamstress. She must be an efficient manager as well as a capable mother, and must learn that it is her big job to rear her children properly, and to prevent disease.

To manage well the mother must teach each member of her family to accept certain responsibilities, and it is the duty of the instructing visiting housekeeper to see that these responsibilities are carried out. The mother is first taught to keep her home clean. By example and simple explanation she then learns to cook the proper kinds of food, and this brings with it the ability to reduce the cost of living by discriminate buying. From a hygienic standpoint, the mother is also given instruction in personal care, as well as proper attention to her household duties.

THE WORK SPEAKS FOR ITSELF

The home environment that is unwhole-some and unlovely the Visiting House-keeper seeks out and corrects.

This is done, not by her own efforts, but by supplying the incentive and showing the way to self-help.

She gives a meaning to humdrum duties and awakens enthusiasm for the day's work.

This constitutes the best kind of preventive measure in health work. Does it not also involve a spiritual regeneration? So then the womanly aid and sympathy of the Visiting Housekeeper becomes a therapeutic agent.

The average mother with whom she works is uneducated, and has a low standard of what constitutes cleanliness. On her initial visit a survey is made of the family and it is impressed upon the mother that the visiting house-keeper will work with her to secure the desired results with the best and simplest methods. The mother soon comes to the belief that the plans developed for the improvement of conditions

in the home as well as in the children are her own, and that the calls of the visiting house-keeper are made merely as a general supervisor who understands the particular requirements of that home.

The people must be met on a ground of equality to gain their confidence. With mutual understanding ties are formed which are strengthened with each visit. No two families can be cared for in the same manner, nor do all families readily accept the instructions. One of the great difficulties to overcome is to break down the barriers of the deeply rooted traditions of the past. While the kosher kitchen is strictly maintained, little by little foods which are most nourishing are introduced to the family table, primarily a greater amount of staples instead of black bread and herring. Almost without exception in such homes, cereals have been an unknown article.

Incentive Must Be Created

Many families who are contented in their environment of squalor must be aroused to a realization of their condition and what it means to their future. To stimulate the desire to improve present environment, they must learn that help is being held out to them, but that they must work for it themselves.

In new cases, where the mother is not physically able to do the cleaning and has absolutely no conception of how to start, a colored maid whom we have trained, goes out with the visiting house-keeper and the family is given its first lift. We start from the farthest corner of the home and go carefully through it. Old clothes stored away for years, representing gifts of friendly but short-sighted benefactors, are found, sorted, and properly placed. If possible the rags are sold. In homes where the mother is ill and is making a great effort to raise the standard of living, the maid does the laundering once a week. She becomes very much interested in the families and cooperates in every detail.

A practical housekeeping center has been equipped in the administration building of the Jewish Aid Society, where mothers' classes meet each week. By simple explanation and practical demonstration, the mothers are given lessons in cooking and food values, discriminative buying, and proper preparation of foods. Instruction is given in personal care from a hygienic standpoint, and each mother is taught to write her name in English. In some instances it has proved to be a stimulus for further instruction in the public school. That the mothers may learn the importance of discriminative buying, they are taken direct to the store and their purchases supervised. Afterward they are allowed to go alone, and they profit and gain self-confidence by the mistakes made in their purchases.

Reach Community Through the Home

One mother has so readily responded to all instruction that she is now able to teach her neighbors how to keep clean and to cook and bake. She shows such good judgment in her buying that she acts as chaperon to her neighbors in their shopping expeditions. These trips are usually made on sale days and, if she deems the sales worth while, the purchases are made with greatest care. This work has brought to her a heretofore unknown happiness. Despite her busy life, involving countless duties, she has learned the real joy of giving and is always ready to lend a helping hand.

A mothers' club has evolved from the cooking classes and the spirit of friendliness and cooperation which the mothers evince has been one of the most gratifying features of the work. There is a keen interest in the cooking demonstration in each home, where the work is done with the cooking utensils at hand. Each mother watches the progress of her neighbor and tries to carry out in her own kitchen the demonstrations given in the homes of the others. "Company for the first time

in fourteen years," one mother said when the class met at her home. The instructive visiting house-keeper exerts her greatest influence in the home itself.

The most important obstacle to be overcome is in effecting an entire change in the attitude of the mother toward her home, her family, her kitchen, as well as every part of her house. The same holds true in clothing: simple standards must be taught. When the mother is convinced that clothes plainly made are in better taste and launder more easily, much has been accomplished.

Play Helps the Work Along

Nor is recreation overlooked. Mere words are inadequate to express the appreciation and enjoyment of the mothers at the little affairs and outings given for them throughout the year. At our parties mothers were entertained with Jewish songs and many were able to join in the choruses with an enthusiasm which must be seen to be understood. For the first time in years, many of the mothers have been privileged to dance to real music. They were then invited to go to a moving picture. They enjoyed talking about this event beforehand quite as much as they enjoyed its actual realization, and to be invited to sit through a performance at the Jewish Theater was a treat about which they never even dared to dream. We go in a body as a mothers' club, and their conduct at these affairs is a thing to be proud of.

Nor is the work of benefit only to the mothers. Although it has often been disheartening, even from the most difficult cases, much has been gained. The strong bonds of friendship formed through the many visits of trials have been of great mutual stimulus; and the spontaneous acts of gratitude of the mothers, expressed in the eye as well as in action, have more than compensated for the frequent discouragements. It is this personal contact with the mother that inspires the instructive visiting house-keeper and helps to bring about the desired result. A deep sympathy with suffering humanity is essential, but it must be untinged with sentimentality. Firmness must be combined with tenderness, and, above all, the instructive visiting house-keeper must learn to act quickly and tactfully. The path is strewn with many disillusionments, but the psychological moment is sure to present itself when tangible results become evident.

A Case in Point

The following is an example of the intensive work done with one family:

The family consisted of a lazy, indifferent fath-

er; a careless, slovenly, sarcastic mother; and seven children, ranging in ages from 8 to 14 years, all tuberculous, except the youngest. The father, mother, and oldest two children had had sanatorium care. After the father was released from Oak Forest, he was placed in a newspaper stand, where he worked nine hours a day, averaging about \$12 per week. Four of the boys worked spare moments, outside of school hours, at the newspaper stand and newspaper routes. The father did his work unwillingly, believing he was too sick to work. His income was inadequate for the family, and the Jewish Aid Society lent its support. The family lived in four gloomy rooms, occupying mainly the two filthy rear rooms, where they were huddled together, a most unhappy lot. They resented any intrusion and brusquely told the visiting house-keeper to leave them alone, as they would get along the best they could.

The parents were at the "don't care" stage. The mere suggestion that the wife do her own baking brought consternation to father and mother alike, for the husband could not understand that his sickly wife should undertake the task. After three rebuffs there appeared a faint gleaming of acquiescence on the part of the family.

Before any work was possible for the family a more desirable flat had to be found. In the new, more cheerful rooms, conditions slowly changed. The cleaning was done by the family under supervision. The father, who heretofore seemed deliberately to hinder the work, finally consented to do his share of the housework. When one of the neighbors gave them a discarded red velvet parlor set with oak trimmings, their joy knew no bounds. The mother no longer pleaded sickness to evade her work. Weekly home demonstrations aroused her interest in baking and cooking. After two months of constant supervision, she made ten loaves of oatmeal bread at one time without fatigue. The children were weighed at the dispensary and each showed a marked improvement and gain.

A Family Finds Itself

Because of the encouraging results, and in order to make sanatorium care unnecessary for the balance of the family, it was decided by the Jewish Aid Society to increase their allowance to meet the advanced cost of living. New kitchen utensils and household supplies were bought. The planning of meals was done by the oldest girl, under supervision at first, and alone after three months. She also kept an expense account with all details. Her meals were well planned and prepared, and it was a joy to know that the entire family was

able to sit at the table at one time. This is just another of the niceties of life which the family were quickly grasping.

It was found that this flat was too small for the needs of the family, and the scurry for a new home was participated in by the entire family. After several months of search the ideal home was found by one of the little boys. It is a sunny, cheerful house with adequate sleeping rooms to warrant a bed for each member. It is situated far back in a deep lot, and has a garden with flowers in the front and an ideal playground in the back; vegetables grow in the lot on the side of the house.

It was in this moving that real results of intensive work were evident. Every piece of furniture worth taking was thoroughly scrubbed and varnished, each member of the family doing a goodly share of the work. They had learned the value of cleanliness which they were carrying out now in actual doing. Everything that was brought into the new home was absolutely clean. The old crex rug which had almost been worn out in service in the old home was cut up into small pieces and bound for use as bedroom rugs. Each member is carrying out the schedule of work as planned with the greatest satisfaction and pride.

Beside the mother's duties which she never neglects, she finds time to do all the sewing for herself and all the children, the clothes being made over from the garments supplied by our store rooms. Today they boast of more clothes than are found in the average middle class home, for the mother has developed the faculty of tasteful combination and the utilization of every scrap to its best advantage. The father who heretofore had never had any real desire to work, is now anxious to give up the stand and secure work where he can make a living wage. In February the oldest girl will finish her two years' business course at high school; the oldest boy will graduate from grammar school at that time and is then to be given advantage of the same commercial course. The physical condition of each member of the family has been closely watched and each shows marked improvement.

The family spirit is one to be envied. Their love for one another has enabled them to rise above the trials that confronted them, and in a few years each member will be self-supporting and a pride to the community.

It is this personal touch with the families which is the greatest asset of the instructive visiting house-keeper. Possibilities are great and through patience and tenacity of purpose a rich harvest of rewards is possible.

A CONSULTATION SERVICE IN TUBERCULOSIS WORK

By D. B. ARMSTRONG, M.D., EXECUTIVE OFFICER, COMMUNITY HEALTH AND TUBERCULOSIS DEMONSTRATION, FRAMINGHAM, MASS.

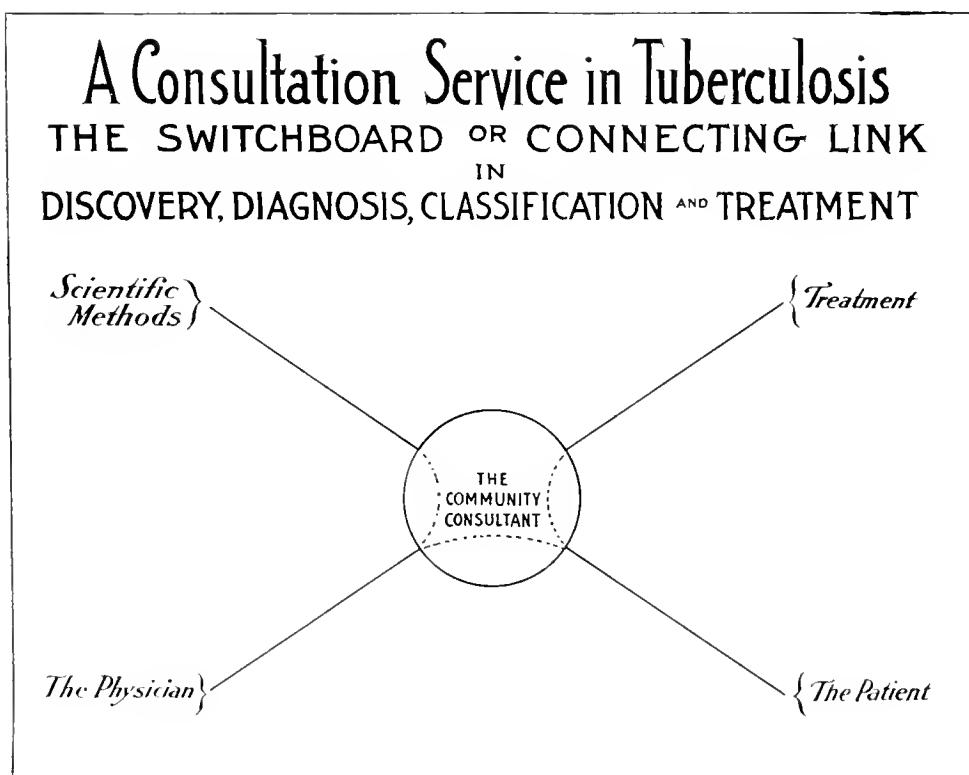
THE experience of the Framingham Community Health and Tuberculosis Demonstration, now under way for approximately two and one-half years, has thrown considerable light upon the essential factors in the tuberculosis program, and has also indicated in a measure the relative degree of importance of the numerous devices which have been employed for meeting the problems of tuberculosis in a typical American community. In a summary fashion, the links that are

V. *Classification*.—Methods, standards, etc.

VI. *Treatment*.—Home and institutional; education, segregation, therapy, prevention; relief, domestic science, social adjustment.

VII. *Subsequent Observation*.—Economic adjustment, employment, constructive hygienic education.

VIII. *Prevention*.—Of infection, of disease; education, sanitation, segregation, personal hygiene.



The Community Consultant serves as a connecting link between the physician and early medical advice for the patient, between the physician and scientific standards of diagnosis and treatment, and between the patient and early adequate treatment.

involved in the complete community chain for handling tuberculosis may perhaps be roughly classified as follows:

I. *Organization*.—Lay and professional organization, interest, coordination, education, public service ideals.

II. *Legislation*.—Sanitary, epidemiological, institutional provision, and appropriations.

III. *Sanitation*.—Cleanliness, respiratory hygiene, etc.

IV. *Disease Detection*.—Reporting, clinics, organized age group work, consultation service.

IX. *Research and Demonstration*.—Study, education, initiation.

It has seemed, in the Framingham experience, that in the development of community tuberculosis programs, the phase of the work most neglected is that of discovery. At the beginning of the Demonstration, there were three known cases for every death, though for some time there had been in the community an excellent clinic and nursing equipment, together with other machinery. This ratio has now been greatly increased, due to the installation of special devices for the discovery of tuberculosis, particularly the

consultation service, which grew out of extensive medical examination work carried on in a volunteer way throughout all sections of the community.

Permanent, Continuous Consultation Service

This preliminary survey served to stir up an unusual amount of interest in tuberculosis among both physicians and laymen. On a basis of general medical examination work there developed a permanent and continuous consultation service, operated on a part-time basis at first, but now demanding full-time service as a result of the increased requirements of the community as expressed through physicians and private citizens. Needless to say, this service requires expert, mature, widely experienced, and tactful personnel.

The services of the full-time physician who serves on the Framingham staff as chief medical examiner and expert consultant were originally offered to the physicians and people of Framingham through special press notices, letters to the medical men, introductions through the medical organizations, etc. Dr. P. C. Bartlett, who has occupied this position on the Framingham staff since the beginning of the consultation work, offers to the local physicians specialist advice on difficult and doubtful cases of pulmonary diseases, the consultations being held either in the doctor's office, in the patient's home, in the dispensary, or health station.

Differentiation in Thoracic Disorders

At the present time, a tendency exists for this service to broaden in scope, and to cover other thoracic conditions such as cardiac disease, general medical complications, etc.

Practically all of the physicians of Framingham now employ this consultation service, which is offered on a pay or free basis, the great majority of the consultations having been given without charge until the present time. The presence of such a consultant in the community also makes possible other lines of approach to the medical aspects of the tuberculosis problem, including the holding of lectures, clinics, demonstrations, etc.

In brief, the advantages of this service may be stated as follows:

Early Detection of Disease

(1) It greatly increases the detection of tuberculosis. While there were 27 known cases on record in Framingham at the beginning of the Demonstration, and while there had been under observation only 40 cases during the year preceding the Demonstration, the number under observation during the first year of the Demonstra-

tion was increased to 185, approximately one-third of these having been discovered through the consultation service. At the present time the total number of cases, excluding the suspicious ones, that have been under observation in Framingham during the Demonstration, is approximately three hundred.

(2) It removes the burden of diagnosis in tuberculosis from the local physician and, consequently, increases the probability of such a diagnosis being made.

(3) It encourages the reporting of disease. During the decade preceding the Demonstration the physicians of Framingham reported an average of thirteen cases a year. This number increased to fifty-nine during the first year of the Demonstration.

(4) It encourages the diagnosis of tuberculosis at an early stage. During the first year of the Demonstration, of the total number of cases reported, 42 per cent were advanced, while during the second year only 16 per cent were advanced.

Post-Graduate Medical Instruction

(5) It offers an opportunity for post-graduate medical instruction, through lectures, clinics, demonstrations, etc.

(6) Through the use of standard methods for the diagnosis, classification, and treatment of tuberculosis, it tends to elevate and standardize medical practice regarding this disease.

(7) The contact between the expert consultant and the local physician means also improved treatment, the consultant being able in numerous cases to advise both the physician and the patient directly regarding therapeutic measures. During the Demonstration thus far about 33 per cent of the active cases have been institutionalized.

(8) It is an increasingly valuable supplement to medical, nursing, and dispensary machinery, and at the present time, in Framingham alone, a town of 17,000 people, the consultant is called upon thirty or forty times a month by a large percentage of the local physicians.

(9) The consultant acts as a connecting link between the physician and the patient, between the patient and treatment, and between the physician and a knowledge of scientific methods.

While the cost of this service for a small community cannot perhaps be justified except on an experimental basis, the extension of the service to cover wider areas and larger populations is anticipated as an outgrowth of the Framingham experience.

Such a consultation service could readily be

offered on a state-wide basis, the work being done in an itinerant fashion, the presence of the consultant being advertised beforehand in various communities, appearing there on a definite schedule, under official or private auspices. Such a program might be initiated on a full or part-time basis, and could probably be readily developed under the auspices of the state department of health, or State Tuberculosis Associations.

Itinerant Consultation Service

At the present time an itinerant consultation service is being operated at the Cape section of Massachusetts under the auspices of the State Department of Health, the State Tuberculosis League, and the Barnstable County Tuberculosis Hospital. The experiment is being tried or is about to be initiated in a number of communities, including Brookline, Mass., Akron, Ohio, Oklahoma City, Okla., East St. Louis, Ill., and in Vermont.

There is, of course, no reason why this form of special advisory service could not eventually be extended to cover other medical needs, and a wider range of diagnostic problems, such as perhaps the obstetric, pediatric and other specialties, together with the problems of general internal medicine.

Function Primarily Diagnostic

The service must be primarily a diagnostic one, cases as discovered being referred to local physicians of the patient's own choosing for treatment.

As indicated in the beginning, the experience in Framingham with the consultation service and with other special measures for the discovery of tuberculosis has led the workers there to feel that, whereas the hospital, the clinic, and the nurse are essential factors in a community tuberculosis program, more attention must be paid to the development of discovering devices. Apparently no community is justified in considering its program adequate if it does not have the advantages of special devices, such as a consultation service for the discovery of tuberculosis.

All over the world today scientific and public health authorities interested in tuberculosis are asking the question: "What is the next step in tuberculosis work?" Various answers are being given to this inquiry. The answer of the Framingham experience is that tuberculosis exists to a greater extent than has hitherto been supposed, and that it must be discovered and brought under treatment before it can be controlled. Consequently the "next step" is the *first step*, namely, the discovery of the disease.

NEW HEADQUARTERS FOR NATIONAL EDUCATION ASSOCIATION

The National Education Association announces that after July 1st, 1920, it will establish national headquarters in the Guggenheim property at 16th and M Streets, Washington, D. C. The association recently came into possession of this property, which is valued at \$98,000. The site is about five blocks distant from the White House and diagonally across the street from the home of the National Geographical Society.

THE QUESTION OF HOSPITAL STANDARDIZATION

Attention was centered upon the practical problem of hospital standardization in both discussions and demonstrations at the October gathering of the American College of Surgeons held in New York City during the last week of October. Studies of the practical application of hospital standardization were made at the Vancouver General Hospital, New York City, the Woman's Hospital, New York City, St. Vincent's Hospital, Los Angeles, and Mount Sinai Hospital, Cleveland, during 1918-19. Accounts of the work done in this direction at the several institutions were given by the superintendents and chief surgeons.

The Rev. Charles B. Moulinier, S.J., president of the Catholic Hospital Association, delivered an address on "Standardization in Catholic Hospitals." His talk was followed by discussion on "The Work of the College in Hospitals" by John D. Bowman, M.D., of the American College of Surgeons. Daily sessions were devoted to operating clinics and demonstrations.

PROBLEM OF HOSPITAL DEFICIT

A deficit of \$3,000,000 in the funds of the non-municipal hospitals in Manhattan was revealed recently in the Fortieth Annual Report of the Fund. A special committee has been appointed by Robert Olyphant, president of the United Hospital Fund, to devise means of lifting this deficit burden from the hospitals. Forty-six hospitals are members of the Fund and during 1918 an aggregate of 1,282,078 free days were included in their medical care. The average daily cost of maintaining non-paying patients, according to the report, has risen from \$2.02 in 1914 to \$3.13 in 1918, an increase of 58 per cent. The estimated cost per patient this year will be \$3.50. Plans for the care of the sick involve adequate hospitalization. That such a deficit can exist shows a serious defect in the present provision for such care.

Institutions affected are:

General Hospitals: Mount Sinai, New York, St. Luke's, Presbyterian, Post-Graduate, Lenox Hill, Roosevelt, Lincoln, Lebanon, Beth Israel, French, Flower, Sydenham, St. Mark's, Knickerbocker, Hahnemann, Volunteer, Polyclinic, and Park.

Special Hospitals: Orthopaedic, Ruptured and Crippled, Deformities, Joint Diseases, New York Eye and Ear Infirmary, Manhattan Eye, Ear, and Throat, Ophthalmic, Knapp Memorial, Skin and Cancer, Memorial, House of Rest, Consumptives, and Neurological Institute.

Women and Children: Lying-In, St. Mary's, Woman's, Nursery and Child's, Sloane Infirmary, Women, Children, Babies', Manhattan Maternity, Misericordia, Jewish Maternity, and Hospital for Women.

Chronic Convalescents: Montefiore Home, Home for Incurables, Isabella Home, House of the Holy Comforter, and St. Andrew's Convalescent.

LAW FOR THE DOCTOR

By LESLIE CHILDS, ATTORNEY AT LAW, INDIANAPOLIS,
INDIANA*

(Is a physician who testifies as a witness in a judicial proceeding disclosing confidential communications liable in damages to his patient?)

In Smith vs. Driscoll *et al.*, 94 Wash. 441, the defendants, Driscoll *et al.*, were licensed and practising physicians and surgeons and had attended the plaintiff, Smith, professionally. Later Smith became a party to a law suit opposing one Leonard, and the defendants were subpoenaed as witnesses, testifying apparently much to Smith's embarrassment. Thereupon Smith brought the action above named, asking for damage for alleged wrongful disclosure of confidential information acquired in their professional capacity.

The exact nature of the alleged confidential disclosure made by the defendants does not appear in the report, and the case turned on a point of law; but the court, in passing upon the issues raised, discussed the question of a physician's liability in situations of this kind in an able manner, saying in part:

" . . . Is a physician who, while testifying as a witness in the course of a judicial proceeding, discloses confidential communications made to him, or professional information acquired by him while prescribing for a patient, liable in damages to the patient for so testifying? . . .

To the ordinary mind it would seem that a physician, while testifying in a court of justice, is in the same situation as any other witness, and his rights and liabilities are to be determined by the same legal standards that are applied to a witness who is not a physician. We can conceive of no possible reason why the protection which the law, . . . places about witnesses generally, should be denied to a particular witness merely because he is a physician. If this immunity is withdrawn in his case surely the situation of the physician as a witness is not an enviable one. If he is interrogated, and required by the court to answer, concerning confidential communications in his professional keeping, and does so, he will be rewarded for his obedience to the law by being mulcted in damages to the aggrieved patient. If, on the other hand, he considers it to be his paramount duty to preserve in its integrity his obligation to his patient and refuses to testify, he will be rewarded for his professional loyalty by being committed to jail. Manifestly, no such barbarous rule would be tolerated by any system of civilized jurisprudence. . . .

"A physician is not permitted to disclose from the witness stand the communications of his patient made in confidence merely because the information would be relevant and pertinent to the issues involved. Before such testimony may be given it also must be admissible in the particular case. The important issue, therefore, in an action against a physician for divulged confidential communications while testifying in the trial of a case, is whether the testimony complained of was admissible in the case in which it was given and was relevant and pertinent to the issues. . . .

"The complaint here does not set forth the nature of the action in which the offending testimony was given, . . . it alleges that the statements complained of were made over the strenuous and timely objection of appellant. This allegation invites the inference that the testimony was given in response to questions and in obedience to the ruling of the court, in which event respondents would not be liable, even though the testimony were both inadmissible and irrelevant."

The court concluded by sustaining a demurrer to the complaint.

It would seem by the holding in this case, which is sustained by the great weight of authority, that before a physician could be held liable in damages to his patient for disclosing confidential communications while testifying

ing as a witness in a judicial proceeding, it would have to be shown that he abused his privileges as a witness in some manner. Witnesses are granted a certain amount of immunity from civil liability for statements made in court, and, so long as the testimony given is relevant and pertinent to the cause, there can attach no civil liability; that the physician enjoys this immunity in common with other witnesses cannot be doubted.

Whether a given interrogatory is admissible, relevant, and pertinent is a question for the court to decide when presented. If then, the physician witness is of the opinion that to answer might involve him in an after dispute, he may avail himself of his privilege as a witness and decline to answer until ordered to do so by the court.

If the court decides that the question is proper and directs him to answer, he may do so without fear of incurring after civil liability regardless of how offending his testimony may be to a third party, this assuming, of course, that in his reply he stays within the record answering in good faith and to the point.

New Chairman for National Research Council

Dr. Henry A. Christian, Hersey Professor of the theory and practice of physic at Harvard University, has assumed in Washington, for the academic year 1919-20, the position of chairman of the Division of Medical Sciences of the National Research Council. Doctor Christian has been physician in chief of the Peter Bent Brigham Hospital, Boston, since 1911, and was dean of the faculty of medicine of the medical school of Harvard University from 1908 to 1912. He is a well known and active member of various national associations of medical men and of the American Academy of Arts and Sciences.

OCCUPATIONAL THERAPY

During the war, the Department of Nursing and Health of Teachers College, Columbia University, gave short courses to meet the emergency demand of the army for reconstruction aides in occupational therapy. Montefiore Hospital furnished the practice field for the Teachers College students and two hundred received training there during 1918-19. As a result of this combination of theory, technical instruction, and practice teaching, the board of directors of Montefiore is offering six scholarships of \$350 each for work at Teachers College next year in occupational therapy.

The successful results of using occupation for its therapeutic and moral value in army hospitals has awakened wide interest and given an impetus to the development of such work in civil hospitals. It might be expected that a large number of the aides who were inducted into the army hospitals during the war would be available for this purpose, but a survey shows that a considerable proportion of them will return to former occupations or that they entered the work as a war service and do not wish to continue in professional life. Moreover, since many entered the military service on the emergency call, without the training necessary for qualified workers, even the experience they have gained in hospitals will not make up for their lack of technical knowledge and wider vision which is required of those who undertake to direct the work, and so there is a dearth of qualified supervisors and directors for this field.

A committee of the National Society for the Promotion of Occupational Therapy has formulated a standard course of training for occupational therapy teachers, and a course which in the main coincides with this will be

*The seventh of a series of articles on "Law for the Doctor," written for MODERN MEDICINE by Leslie Childs.

offered at Teachers College and at Milwaukee-Downer College next fall. This field of work opens up a new profession for women, for it is fast becoming distinct from that of nursing, and it is one which has the double interest of dealing with the production of hand work, which appeals to the craftsman, and with human problems, which appeal to the nurse and social worker.—*The Survey*.

AMERICAN CHILD HYGIENE ASSOCIATION

The Tenth Annual Meeting of the American Child Hygiene Association will be held at Asheville, N. C., November 11-13. This meeting immediately follows the session of the Southern Medical Association which will be held at Asheville November 10-13. Their program shows a number of interesting papers to be presented by authoritative speakers and without doubt the aims of the Hygiene Association will be furthered by the joint meetings and discussions which are arranged by the State Medical Society.

The chief papers on the program follow:

The Maternity Problem in New York City with Special Reference to the Social Aspects, Dr. Ralph W. Lobenstein, New York. Discussion opened by Miss Anne Stevens, New York.

Prenatal Care in Massachusetts, Dr. Robert L. DeNormandie, Boston. Discussion opened by Dr. Merrill E. Champion, Director, Division of Hygiene, State Department of Health, Boston.

Maternal Benefits and Its Bearings on Prenatal Care, Dr. Merrill E. Champion. Discussion opened by Dr. Fritz B. Talbot, Boston.

Report of Breast Feeding Bureaus at Minneapolis, Dr. J. P. Sedgwick, Minneapolis. Discussion opened by Dr. Richard M. Smith, Boston.

How May the General Practitioner Be Interested in the Modern Socio-Medical Program for Infancy? Dr. Richard A. Bolt, Oakland, Cal. Discussion opened by Dr. Joseph S. Wall, Washington, D. C.

Help in the Home for the Mother with a Young Baby, Dr. Helen MacMurphy, Toronto. Discussion opened by Dr. Mary Sherwood, Baltimore.

An Infant Hygiene Campaign in the Second Century, Dr. John Foote, Washington.

General Outline of Welfare Work for the Child from 2-6. From the Viewpoint of the City, Miss Sara B. Place, Supt. Infant Welfare Society, Chicago. From the Viewpoint of the Rural Community, Mrs. Virginia Knox Kimble, State Supervisor of Nurses, Topeka.

Statement of the 1919-1920 Program of the National Organization for Public Health Nursing, Miss Zoe LaForge, Children's Bureau, Chicago.

The Work of the University Extension Service in the P. H. S., Washington, D. C.

Prevention of Infant Mortality; Mrs. Louis Selbert, Specialist in Home Nursing and Health, Agricultural Extension Service, University of Missouri, Columbia.

What England and Scotland Are Doing for Children of Pre-School Age, Dr. William Palmer Lucas, San Francisco, Chief of the Children's Bureau of the American Red Cross in France; Miss Ellen C. Babbitt, Washington, D. C.

Observations on the Supervision of the Pre-School Age in the Large City, Dr. Walter H. O. Hoffmann, Chicago.

Correctable Defects Under Six Years of Age, Dr. Adelaide Brown, San Francisco.

Psychiatry, with Special Reference to Children of School Age, P. A. Surgeon Walter L. Treadway, U. S.

"Alias Hygiene," Dr. Thomas Storey, Interdepartment Social Hygiene Board, Washington, D. C.

Oral Hygiene, Maj. Harry B. Butler, U.S.A., Washington, D. C.

Rural, Dental, and Surgical Clinics, Dr. George M. Cooper, Director, Bureau Medical Inspection of Schools, North Carolina State Board of Health, Raleigh. Discussion opened by Dr. Taliaferro Clark, U. S. Public Health Service, Washington, D. C.; Dr. Julius C. Levy, State Board of Health, Newark, N. J.

Opportunities of the Rural Public Health Nurse for Developing Child Hygiene, Mrs. Ruth A. Dodd, South

Carolina State Board of Health, Columbia. Discussion opened by Mrs. Kate Brew Vaughn, North Carolina State Board of Health, Columbia; Dr. A. T. McCormack, Secretary, State Board of Health, Bowling Green, Ky.

The Minnesota Rural Clinic, Dr. E. J. Huenevens, Minneapolis. Discussion opened by Dr. Richard M. Smith, Boston; Dr. Anna E. Rude, Children's Bureau, Washington, D. C.; Dr. J. P. Sedgwick, Minneapolis; Dr. N. C. Pearce, Minneapolis.

MISSISSIPPI VALLEY CONFERENCE

The Seventh Annual Session of the Mississippi Valley Conference on Tuberculosis was held at Des Moines, Ia., on September 22 to 24, 1919, under the presidency of Sherman C. Kingsley of Cleveland, Ohio. Attendants from twelve states comprised the conference and more than five hundred workers were present. This organization urged the necessity for uniform legislation for the control of tuberculosis; for more complete cooperation of the governmental and extra governmental health agencies.

Much interest was aroused by Julia Lathrop, chief of the Federal Children's Bureau, Washington, D. C., by her discussion of the subject, "Tuberculosis, An Evidence of the Need for Child Welfare Standards," and also by Owen R. Lovejoy, president of the National Conference on Social work, New York City, on "Prevention."

Two subjects which were given special and detailed prominence throughout the session were "Occupational Therapy in the Treatment of Tuberculosis Patients," and "The Eradication of Tuberculosis Through Our Efforts With the Child, Plus the All-Important Education of the Public," presented, respectively, by Mr. Kidner, of the National Tuberculosis Association, and Miss Beatrice E. Lindberg, who represented the Advisory Commission of Minnesota.

Various "lessons from the war" were presented by different speakers, among whom were Dr. George T. Palmer, of Illinois; Major W. H. Watterson, M.D., Federal Board of Vocational Education, Washington, D. C.; Mr. Kidner, of New York; and Dr. Walter J. Marcley, of Minneapolis, Minn.

Another topic which was brought into prominence before the conference of the Mississippi Valley Sanatorium Association was that of nursing problems, suggested by a paper of that title by Dr. R. L. Williams, of the Wisconsin State Sanatorium, who advocated correspondence courses for the training of tuberculosis nurses in the smaller sanatoriums not capable of maintaining training schools. His idea was well received. "The Standardization of Sanatoriums," a report of the committee appointed at the 1918 conference, consisting of Dr. George T. Palmer, of Illinois; Dr. E. R. Vander Slice, of Michigan; and Dr. Robinson Bosworth, Chairman, St. Paul, Minn.

The officers of the Conference were: President, Sherman C. Kingsley, Cleveland; vice-president, W. J. Pettit, M.D., Ottawa, Ill.; and secretary-treasurer, Ralph J. Reed, Des Moines, Iowa.

Officers elected for next year are: Dr. John H. Peck, Des Moines, president; Dr. W. McN. Miller, St. Louis, vice-president; and Dr. A. T. Laird, Duluth, secretary-treasurer. Mr. Kingsley was elected to the executive council and Mr. Nels A. Nelson, Cincinnati, and Miss Charlotte Ludwig, Cleveland, were elected to the Advisory Council to represent Ohio.

The 1919 officers for the Mississippi Valley Sanatorium Association were: President, Dr. H. V. Scarborough, superintendent of the State Sanatorium, Oakdale, Iowa; secretary-treasurer, Dr. E. B. Pierce, superintendent of the Michigan State Sanatorium, Howell, Mich.

The 1920 officers of the Mississippi Valley Sanatorium Association are: President, Dr. Robinson Bosworth, St. Paul, Minn.; vice-president, Dr. G. L. Bellis, Muirdale Sanatorium, Milwaukee, Wis.; and secretary-treasurer, Dr. E. B. Pierce, State Sanatorium, Howell, Mich.

The 1920 conference will be held in Duluth, Minn.

DEFECTS IN STATISTICS

A strong argument against the indifference and often actively antagonistic attitude of physicians toward statistical methods and the onus of their duties in regard to the reports necessary in compiling vital statistics is found in an attempt to discover from our statistics the total loss of young life which occurs before birth, at birth, and during the first year after birth. In a paper published by Ballantyne in "Maternal and Child Welfare" in October, 1919, are suggested several new rates in studying infant mortality. The deductions in his paper are drawn from a study of Edinburg birth rates, infantile death rates, and neonatal death rates for the years 1911 to 1917 inclusive.

His summary of the factors involved in infant mortality is: (1) The antenatal factor, determined by placenta; (2) the intranatal factor, injuries in child birth; (3) the postnatal factor, the germ-laden environment; (4) a complexity of causes. The relative importance of these factors in infant mortality are important subjects of study but they must be mastered if they are to be understood and combated.

FORBIDS PHYSICIANS TO SUPPLY NARCOTICS TO DRUG ADDICTS

A recent decision of the Supreme Court of Minnesota is to the effect that the Anti-Narcotic Law of Minnesota prohibits the furnishing of habit forming drugs to addicts by physicians. The test case, as given in the *Public Health Reports*, was that of a physician convicted in the lower court of selling morphine to an habitual user of the drug. The defendant admitted furnishing the drug, but claimed that he furnished it in an attempt to cure the drug habit and that under the law he could both prescribe and furnish the drug to addicts for such purpose. The court held that the language of the Act was plain that a physician may prescribe in good faith any substances he deems necessary for the treatment of a patient, but that he must not furnish the drugs.

TRAINING FOR TUBERCULOUS SOLDIERS

Discharged soldiers suffering from tuberculosis are placed in training by the Federal Board for Vocational Education under the same conditions as are men with other handicaps—some with support during training, others without support, and a few while they are still in the army hospitals.

Before a tuberculosis soldier is eligible for training, the medical officer must pronounce his case apparently cured or arrested. Quiescent cases of pulmonary tuberculosis having had negative sputum for a period of at least two months must be specially recommended by the district medical officer and during the course they must remain under expert medical supervision.

If the disease is still active, and the patient is receiving hospital treatment, training will be given only upon the endorsement of the hospital authorities who shall also approve the kind of course provided. Men whose cases are active, but who refuse to take hospital treatment are considered ineligible at the time, but their cases will be

reeconsidered should they be physically able to undertake the work later.

ARKANSAS LEGISLATES FOR HEALTH

Among legislative measures pertaining to public welfare passed in Arkansas in 1919 is a bill to establish the Arkansas State Farm for delinquent women. The new law provided for lands and proper housing, and corrective measures. Provision is made for adequate medical attention.

Two bills were passed affecting Sebastian and Phillip counties which, although local in character, are significant as they indicate the general trend of sentiment everywhere toward full-time health officers.

The Dalton Drainage Bill was vetoed, but the discussion of this matter evidences the demand by the people for general measures to control malaria, the principal object of this bill being malarial control.

A PROBLEM OF RECONSTRUCTION

"With regard to the significance of the word 'reconstruction,' I would state that medicine has always progressed by evolution rather than by revolution," writes George Blumer, M.D., in *American Medicine*, who says further:

"Of the particular aspects of the reconstruction of the medical profession which are to be considered it has seemed to me that those which are of the greatest interest to the general public are the ones which concern the contact between it and the profession. Of the changes which should be brought about in the relationship of the medical profession to the public mention may be made of the following:

"The medical profession is at present mainly organized with a view to the cure of disease rather than the prevention of disease. It is highly desirable that the emphasis should be changed and that prevention should be not only recognized as the desirable ideal but that more active measures be taken to put it into effect.

"Aside from communal methods of prevention, such as good water supplies, good sewage, proper housing conditions, etc., which must not only be persisted in but must be made universal, the hope of the future lies in individual hygiene. The basic principle underlying the enforcement of individual hygiene is the periodic health examination, and this must begin with the examination of the expectant mother and must continue throughout the life of the individual from infancy to old age. Combined with it there must be obligatory instruction of all children during the school age in the fundamental laws of health, and to this must be added obligatory physical training.

"In order to carry out this program it will be necessary to greatly increase the number of community physicians and at the same time to greatly increase the number of their co-workers, the public health nurses. It is doubtful whether a wholesale change in the methods of medical practice such as has been suggested can be brought about in the first place without great expense. Whether this expense should be met by an increase in direct taxation or whether it could better be met by the extension of the principles of health insurance is a question which can perhaps be more satisfactorily decided by the economists than by the physicians.

"The successful diagnosis and cure of the more obscure diseases have become so complicated and expensive that ways must be found of permitting the average citizen to avail himself of modern methods at reasonable cost."

THE MONTH IN MEDICINE

Survey of Current Medical Literature with Editorial Comment

WALTER W. HAMBURGER, M. D., Editor

THE VISITING HOUSEKEEPER

ON another page of this issue will be found a report of the pioneer visiting housekeeping carried on by the Jewish Aid Society of Chicago. To us Miss Markman's article is of particular significance; besides carrying a message, it gives a point of view. There has been a growing tendency in social work to maintain the wholeness of the home, but it has been often exceedingly difficult to accomplish this purpose.

Institutions in allied social endeavor are apt to exaggerate the importance of their work, or at least neglect opportunities not definitely connected with their specific problem. A tuberculous patient at a sanatorium is the possessor of râles and tubercle bacilli rather than the potential supporter of his family. Any effort, then, which aims to maintain intact the family relationship should receive careful attention.

In connection with the problem of the proper feeding of the poorer classes, it would seem to us that most social endeavor has overshot the mark and missed the main point at issue. Dietetics is a science whose greatest value lies in its proper individualization and application. Physicians have learned that the treatment of diabetes to be successful must be carried on with the intelligent cooperation of a good cook. All the hospital investigations are of no avail unless the work is carried on from the patient's point of view.

Expressed from a little different angle, this means that a diet is not prescribed in the abstract suitable for an abstract disease; but that the deficiencies or errors of the individual patient's diet are recognized and corrected. It is not sufficient to tell a patient with nephritis to adhere to a "salt-free, non-nitrogenous diet"; it is necessary to discover in the patient's diet articles of food which are not possible under this régime and to substitute other articles which are indicated.

So in all community problems connected with diet, teaching must be from the point of view of

the individuals or groups of individuals whom we are attempting to instruct. A dietitian working in a Jewish community which will not break the laws of Kosher feeding has an entirely different problem from the dietitian in, for example, a Polish Catholic community. It would be of little avail to lecture to these people on an ideal feeding schedule. It has been demonstrated more than once, and Miss Markman's paper again demonstrates it, that to be successful, dietary instruction must be given in the home. Ignorance of food values, of the economy of buying by calories per ten cents can easily enough be overcome if the instructing dietitian knows exactly what the family is eating.

And in this method of instruction every member of the household is a potential unit for the furtherance of the family health and the maintenance of the family integrity. The home is made the school, and other lessons in proper living are taught right in the home. An active cooperation rather than a passive interest is obtained. Likewise, potential instructors for the surrounding community and future leaders in the community are being developed.

DIETARY STUDIES IN THE ARMY

SHORTLY after the United States entered the war a group of clinicians, chemists, and other men interested in the question of scientific dietetics was called together to form "the Section of Food and Nutrition, Division of Sanitation, Medical Department, United States Army." Men who made up this group were all specially trained in the work they had to do and the Division undertook a broad, comprehensive survey of the whole question of feeding our soldiers at home and in the field in France. The *American Journal of Physiology* for September, 1919, contains a series of reports by various members of the Division based on these studies. It has rarely been possible to combine the opportunity for study of the dietary question on such a large

scale with the facilities and the men necessary to complete such a study. As might be expected, the results of these investigations must be of great practical value for the solution of many problems connected with all phases of the diet question. In this review only the salient features brought out by the studies will be emphasized.

R. J. Anderson writes on the "Practicability of Feeding a Scientifically Balanced Ration in Army Camps." This work can be transcribed to read, the practicability of feeding a scientifically balanced ration to any large group of individuals. As Anderson says, the most important problems are those concerned with (1) the available food supplies; (2) the matter of storage and prevention of spoilage; and, (3) cooking. The relative proportion of protein, fat, and carbohydrate; the acid and basic elements; the vitamins; and the roughage or indigestible residue are the important elements in the question of selection. Emphasis is laid on the fact, often neglected, that in considering what constitutes a balanced diet it is self-evident that men do not live on calories alone. Palatability and digestibility, as well as variety, are essentials. But the method at first employed in the army of furnishing a so-called garrison ration, which formed merely the basis upon which the cash value of the ration allowance was calculated, permitted individual organizations to spend money for food other than that furnished by the garrison ration; in other words, if an allowance of fifty cents a day per man was the basis of the garrison ration and only twenty-five cents worth of food per man was obtained in the garrison proper, the rest of the money could be spent by the mess sergeant for food purchased outside. This method allowed a wide range of individual judgment in the purchase of food and made the study of the different messes for that reason particularly interesting. Even after a mess force had had several months' experience it was not unusual to find the average food consumption varying by 1,000 or 1,500 calories per man per day in adjacent companies in the same regiment. "Good cooks and high food consumption appeared to stand in direct relation."

The development of the schools for cooks and bakers helped to improve matters somewhat in the long run; however, most of their training seemed to have been along the lines of mess accounting rather than along the lines of scientific diet. Anderson is of the opinion that there is urgent need for continuing such schools, but believes that it will be necessary to give more thorough instruction in the art of cooking than was generally given in the schools during the past

year. Of particular interest for hospitals and other organizations feeding large numbers of men is Anderson's suggestion that tentative menus be made out for definite periods, as for ten days in advance; that these menus might well aim to provide an average of 3,600 net calories per day per man doing moderately hard work.

The Division of Food and Nutrition proposed a diet furnishing a balance of calories as follows: protein $12\frac{1}{2}$ per cent, fat 25 per cent, carbohydrate $62\frac{1}{2}$ per cent. However, as will be shown subsequently, this is not the diet which was actually used by most organizations during the war. The fat content of this diet is lower by approximately 6 per cent than that actually used by the messes, and on the officers' table it was found that fat supplied 40 per cent or more of the total calories.

Anderson believes that in the interest of good nutrition a uniform menu should be adopted for a whole camp but only under the direction of competent authority. The menu made out for ten to fifteen days in advance would then give the supply officer an opportunity to secure the necessary raw material and, since the menus would specify the amount in pounds of the different foodstuffs actually to be used, a diet of any desired composition or balance could be provided.

Some of the results of the dietary studies made by survey parties of the section showed nutritional errors which could easily have been prevented under the type of supervision suggested by Anderson. For instance, in two adjoining organizations in the same camp at the same time of the year two following menus occurred:

	Grams		Calories per cent	
	1	2	1	2
Protein	85	121	12	13
Fat	59	145	20	33
Carbohydrate	472	540	68	54
Total calories	2,830	4,100		

Both of the messes were well managed and the mess sergeants were above average ability. In mess No. 2 the men were receiving more food than they needed; in mess No. 1 the men were decidedly underfed, but the men in both organizations felt they were being well fed. In mess No. 1 liberal quantities of cabbage, sauerkraut, onions, and potatoes were used—and the stomachs were filled. It is well to emphasize this contrast because it is such a common mistake in daily life. Only too often quantities are purchased instead of calories.

Murlin and Hildebrandt discuss "Average Food Consumption in the Training Camps of the United States Army," and their statistics will unquestionably form the basis for subsequent

studies on the American ration. In an average of 427 messes studied the figures were as follows:

Nutrients	Supplied	Wasted	Consumed	Wasted per cent	Per man per day
Protein, grams	131	9	122	7	Supplied cost, cts. 41.06
Fat, grams	134	11	123	8	Waste cost, cts... 3.20
Carbohydrate, grams...	516	31	485	6	Total waste, lb... 0.80
Fuel value, calories....	3,899	266	3,633	7	Edible waste, lb... 0.38

Analyzing this chart, it was found that on the basis of an average weight of 146½ pounds the average food consumption of the American soldier in training is 24.6 calories per pound body weight, or 52.1 calories per kilogram.

When studying the variations in food consumption for the entire 427 messes, it was found that this ranged from 2,100 to 5,700 calories, with the mean of 3,600 to 3,700 calories. For all practical purposes it can be stated that the range of food consumption, however, lies between 3,000 and 4,500 calories, with the average very close to the mean of these two extremes.

An effort to study food consumption by the various organizations showed that the average figures of the recruit organizations was some 200 calories less than the average total consumption. The effect of seasonal food consumption is clearly seen in the gradual increase from November to March, followed by a sharp decline which continued throughout the summer. However, this increase during the winter months is probably not altogether due to atmospheric conditions, but in part to the stimulus by winter weather to muscular work. The authors use the words "muscular willingness" to indicate the indirect effect of cool weather. They believe that there are many gratuitous muscular motions in the performance of any given piece of work when the temperature and humidity are low and the barometer is high. The conclusion of the study of seasonal variation shows that the average soldier weighing 146 pounds will consume not more than 400 calories extra food.

The effect of the length of time in camp on the food consumption is likewise clearly indicated from these studies. A recruit company at Camp Pike during July and August, 1918, began to consume 2,700 calories per man per day, and ate more every week until by the end of the fifth week the average of all messes was about 3,600 calories. An interesting explanation is offered for these variations of food consumption. The first two weeks in camp cover the period of inoculation for typhoid and paratyphoid. This, together with the strangeness of the surroundings, particularly of the mess, menus, cookery, style of service, and lack of digestive capacity, serves to

keep down food consumption and is responsible for the noticeable loss of weight in the first week. Incidentally, the weight was promptly recovered by the end of the third week.

Extra food that was consumed in the canteens, and in some instances in the restaurants and candy shops of the district surrounding the camp, was difficult to estimate; but one study made at Camp McClellan shows an expenditure per man per day of 21.9 cents for food, distributed as follows:

Article of Food	Cost	Percentage
Candy	\$0.0617	28%
Drinks .....	.0505	23%
Cakes, cookies .....	.0658	30%
Fruit .....	.0106	5%
Ice cream .....	.02	9%
Sandwiches, etc. ....	.0106	5%

Three very good reasons are given for the soldier buying food at the canteen, or, for that matter, why members of any organization fed on a schedule always demand extras: (1) as a pastime and for sociability; (2) to secure sweets that take the place of alcohol; (3) because the desire for sugar, physiological or habitual, is not met by the army ration. In terms of calories the average net consumption of the messes surveyed at Camp McClellan was 3,827 calories per man per day, to which must be added 633 calories eaten at the canteen. This gives a surprisingly high total of 4,460 calories.

Comparing food consumption in the army with other occupations, it is noted that the 4,000 calories of the average soldier is slightly under the consumption of stone masons doing heavy labor and slightly exceeds that of farmers, machinists, and carpenters. The distribution of nutrients in the army diet showed that of the total calories 14 per cent were derived from protein, 31 per cent from fat, and 55 per cent from carbohydrate. The interesting feature of this distribution of calories is the comparatively low protein content and the comparatively high fat content as compared, for instance, to the standard dietary of Voit. It is, however, considerably higher in protein than the Canadian ration, somewhat higher than the British and Italian, and less than the French. The total caloric value of the diet, however, is higher than that of any of the countries just mentioned.

Recognizing that one of the most important factors of a diet for maintenance of morale is variety, Murlin and Hildebrandt studied the number of articles furnished per week. It was found the average number of articles used per mess per week was about fifty-five. For organizations on the march, however, the average number was sixteen. An average American family has thirty-

nine different articles of food which enter into the weekly food inventory. The authors conclude "that army feeding, so far at least as variety is concerned, compares very favorably with household feeding."

Howe, Mason and Dinsmore discuss the "Variations in Strength and in the Consumption of Food by Recruits and Seasoned Troops," and Blatherwick has a very interesting discussion on the "Acid-Base Balance of Army Rations." The question of acid-base balance is one comparatively new and one concerning which any information will be of value. It is known that acid-forming foods lead to the formation of acid urines and base-forming foods cause the excretion of less acid or alkaline urine. Although the exact relationships of the acid- and base-forming elements of diet are not settled, the consensus of opinion is in favor of an approximate balance.

The garrison ration for the army, when completely eaten, showed an excess of acid-forming elements corresponding to about 44 cc. N 1 solution per day. The purchase by the mess sergeant of other substances in the open market seems to introduce larger amounts of the base-forming elements. The studies made by Blatherwick at the various camps show that some of the diets are strongly acid-forming, some are neutral, and others contain an excess of base. The hospital diets were almost uniformly base-forming, probably due to the more extensive use of milk, fruits, and vegetables.

One phase of this question touched upon by Blatherwick is the possibility that the continued use of acid-forming diets might lead to a greater susceptibility to diseases of the less infectious type. It was very difficult to answer this question, but one study at Camp Wheeler seemed to show a relationship between amounts of meat, acid-forming, supplied and the duration of the disease. We quote the last paragraph: "The results obtained at Camp Wheeler are suggestive of a possibility that an acid-forming diet consumed for long periods of time may lead to a greater susceptibility to disease of the less infectious type. Those who have control of the feeding of the large numbers of persons in our public institutions might well undertake an investigation of this problem. In such institutions the necessary control of the diet and of the other factors should be more easily obtainable than in the army."

Prescott discusses the use of dried vegetables by the army. We wonder how many people know that "during the Boer War dried soup vegetables which had been stored in paraffined barrels for over fifteen years, were used by the troops, thus

indicating the keeping quality of these dehydrated products." Prescott examined many of the products in use by the army and discusses them from the standpoint of cost, saving of space and transportation, and in storage, keeping quality, wider range of vegetable foods, and generally improved diet through increase in roughage, alkaline salts, and variety of combinations possible. The rush of getting the large amounts of such material ready in a hurry has not made for ideal results. Approximately 40,000 tons of dehydrated vegetables, principally potatoes, also carrots, turnips, onions, and large quantities of soup mixture have been shipped for our forces overseas during the past two years. Officers of the Quartermaster Corps are quoted as responsible for the statement that these dried foods resulted in great saving in labor, were found fairly acceptable to the men, satisfactory to the subsistence officers and cooks, and in general an excellent and easily handled form of vegetable food. From the standpoint of general use in large amounts, chemical analysis, fuel value, and maintenance of bodily strength, properly dehydrated products are practically equal to fresh materials. The question of antiscorbutic and growth-promoting properties of dehydrated vegetables is probably not completely settled. During the siege of Kut it was reported that some of the British forces were afflicted with scurvy as the result of constant and exclusive use of dried foods. Guinea pig investigation has shown that a diet composed entirely of dried vegetables of non-acid character is greatly weakened in antiscorbutics or has lost them altogether, while with dried fruits of acid character, such as tomatoes, oranges, and lemons, scurvy does not result even after long continued feeding. Prescott is of the opinion that dried vegetables and fruits, when the method is perfected, will have a decided and definite place in the dietetics of the army, especially in winter and in places where an abundant and cheap supply of fresh materials cannot be obtained.

Hoskins has collected the reports of several survey parties on the American military hospital dietaries. In the hospital, food is a question of therapeutics, and in this respect handling of a hospital food problem is different from the work in the camps. Hoskins conceives that there are eight classes of individuals to be dealt with in the army hospital:

- (1) Normal men at fairly active work, needing approximately 3,600 calories daily.
- (2) Normal men at sedentary work, needing approximately 3,200 calories each.
- (3) Convalescent patients, metabolically normal, approximately 2,600 calories each.

(4) Bed patients, metabolically normal, approximating 2,000 calories.

(5) Subacute febrile patients, those with empyema especially, needing high caloric and high protein feeding. Experience at Camp Lee has shown that empyema results in a constant drain on the body nitrogen which should be compensated in the diet.

(6) A class of patients not sufficiently ill to receive special diets, but whose convalescence could be hastened by careful attention to their dietary. Such patients, for instance, as pneumonia convalescents should have meals planned especially for attractiveness and high caloric content.

(7) Constipated patients, requiring laxative components in their meals. "The routine use of cathartics in the wards is a reflection on the dietitians."

(8) A special group of diseases, including nephritis, diabetes, cardiovascular disorders, gastro-intestinal, and acute surgical cases, which

must be treated by special dietary therapeutics.

So-called light diets in two hospitals were studied. The caloric consumption in one was 2,535 and in the other 1,916. The food proportions were very similar to those found in the average army mess. The sick officers' ward has furnished interesting data. The caloric consumption was 3,570, the fat consumption 39 per cent, and the evidence is clear that these patients got approximately what they wanted to eat rather than what was good for them. In the nurses' mess the caloric consumption amounted to only 2,859, while an officers' mess showed a consumption of 3,685. Studies of the relative expenditure for separate items show that the hospital expenditure for meat and condensed milk was less and that for eggs, fresh milk, butter, and fresh fruits materially higher than that of the army at large.

In conclusion, the reviewer wishes to express the hope that all of the work of the Division of Food and Nutrition will be collected and put in available form for wide distribution.

COLLECTIVE ABSTRACT RECENT WORK IN MALARIA CONTROL

BY H. O. NOLAN, M.D., LL.D., F.I.C., NEW YORK

IN September, 1897, the author landed at the pretty French town of Ismailia on the Suez Canal. He then made, for the first time, the acquaintance of the mosquito net and heard the song of myriad mosquitos, for they came, not in single spies, but in battalions.

A few years later he again spent a night at Ismailia. This time he was able to sleep in comfort without a net. Not a mosquito was to be seen, and the town, formerly a notorious center of malaria, was entirely free from that scourge.

Malaria Control Instituted

The beneficent change had been wrought by Ronald Ross in a very short time. It was the first large scale and thorough work of this kind that had, up to that time, been undertaken. Since then much equally successful work has been done in stamping out malaria by the methods elaborated by Ross, the most familiar of which to our readers, being that done in the Panama Canal Zone.

Experience has shown that these happy results can be repeated in all urban districts and in most rural districts. So far as the practical elimination of malaria is concerned, success may

safely be reckoned on even in rural districts presenting the most difficult features, notwithstanding that, in some of these, measures for the complete destruction of the anopheline mosquitos may offer difficulties of an economic order which may be relatively insuperable. In such cases the eradication of malaria is effected by the protection of the inhabitants and by sterilization of plasmodium carriers.

No New Methods of Attack

Owing to the maintenance of large forces in Macedonia and other malarial regions, the individual prophylaxis against and the treatment of malaria were subjected to the same searching re-examination as was accorded to other medical problems which acquired acute importance during the war. On the whole one may say that, while nothing new emerged, there was satisfactory confirmation of established practice. No other specific and no better prophylactic than quinin was discovered.

On the civil side, also, the recent publications on the subject of malaria and malaria control are marked by no striking novelty. They are none the less valuable as affording relatively

exact data on the problems of malaria and especially of malaria control.

In this group the most important papers are those from the pen of Bass, relating to the work undertaken jointly by the International Health Board and the Mississippi State Board of Health. These deal with investigations and operations conducted in the heart of the malaria district of the Mississippi. The various methods of malaria control have been tried out under conditions of scientific exactitude in urban and rural districts in that region after adequate surveys. The results will be summarized later under the appropriate heads.

From the practical point of view, the embarrassment caused by the conflict of agricultural exigencies and the desiderata of mosquito control is nowhere more acutely felt than in malarial districts where rice is grown. The papers of Geiger and his collaborators are therefore highly welcome, in that they deal with the experimental investigation of this problem, and with its successful solution.

Gray writes with precision on the cost of malaria, that is, the economic loss, in a district of California and furnishes us with cogent arguments, expressed in dollars and cents, for malaria extirpation.

The methods available for malaria control are: (1) sterilization of plasmodium carriers; (2) prophylactic quininization; (3) prevention of access by mosquitos to human beings, chiefly by screening; (4) anti-mosquito minor measures, or covering breeding places; destruction of larvae, etc.; and (5) major drainage.

We will deal with the first four as they were applied in the work reported by Bass.

Sterilization of Plasmodium Carriers

Although the prominence now given to the sterilization of carriers as a factor in malaria control is somewhat of an innovation, it is a natural corollary to our knowledge of the etiology and to the normal practice in other diseases.

In an investigation made in 1918, covering a population of 3,815 persons in Sunflower County, Bass found that from 50 to 70 per cent of malaria cases are relapses and not new infections. This fact, which also follows from an examination of other statistics, is enough to justify, on clinical and epidemiologic grounds, an attempt to sterilize all carriers.

Estimates based on three years' work in the Mississippi delta lead to the conclusion that this method alone, if adequately pushed, would reduce malaria by 90 per cent in ten years.

In 1916 practically the whole population of

Bolivar County (31,459) was subjected to a survey for malarial infection. Those infected were treated for disinfection by quinin.

Re-examination after four weeks of treatment showed that 60 per cent of the cases had been sterilized. After eight weeks of treatment, 90 per cent were found free from plasmodia. In the latter series were included some relapses.

Method of Procedure

The method consisted of the administration of ten grains of quinin sulphate each evening, just before retiring. The dose for children was one-twentieth of the adult dose for each year of life.

Re-examination of 9,818 persons showed that a larger percentage of adults was disinfected than of children. Readjustment of the dosage was therefore needed. From the data collected Bass established the following figures:

PROPORTIONATE DOSE OF QUININ REQUIRED TO PRODUCE EQUAL RESULTS IN CHILDREN AND ADULTS

Age.	Proportion of adult dose	Dose when adult dose is 10 gr.
Under 1 year.....	0.05	0.05 gr.
1 year	0.1	1 gr.
2 years	0.2	2 gr.
3 and 4 years.....	0.3	3 gr.
5, 6, and 7 years.....	0.4	4 gr.
8, 9, and 10 years.....	0.6	6 gr.
11, 12, 13, and 14 years.....	0.8	8 gr.
15 years and over.....	1.0	10 gr.

Principles in Wholesale Measures

The principles which must govern action in attempting wholesale disinfection in this way are stated as: (1) treatment which will destroy every parasite; (2) avoidance of inconveniences and discomfort; and (3) economy.

As quinin is slowly absorbed and slowly eliminated, doses at short intervals are unnecessary. One dose a day is as efficient as several. It has been shown that the minimum dose necessary for sterilization in most cases need not be much exceeded in any case. By giving the dose just before bedtime, the discomforts of slight "quinism" are avoided. The drug is fully as efficient in compressed form as in solution. If the compressed drug cannot be swallowed, as may occasionally happen with children, syrup of yerba santa may be used to disguise the taste.

The oral administration of an undisguised acid solution is regarded as a barbarity, in which connection it is interesting to note that, according to Sir Ronald Ross, twenty battalions of British troops, infected with malaria, were put through a ten week's course during which 10 grains of the drug, in solution, were administered daily, under pressure of military discipline. This course was "designed and superintended" by Lieutenant Colonel Dalrymple. Possibly the use of this peculiarly nauseous method of exhibiting

the quinin was merely a result of the not rare indifference displayed by martinetts to the comfort of the soldier. Probably, however, the choice was determined by the greater ease with which the swallowing of the bitter liquid can be assured, thus avoiding "Skrimshanking."

Harrington and Barrier have studied quinin pepsin mixtures for the sterilization of malaria carriers. They report favorably on this combination. They claim that the incidence of "quinism" is reduced 70 per cent, without impairment of the sterilizing action. The following is the formula recommended, after trying a number of variants.

Quinin sulphate	90 parts (by weight)
Milk sugar	6 parts (by weight)
Powdered pepsin (U.S.P.)	4 parts (by weight)

Mix thoroughly and place in capsules No. 0 or No. 3. This gives practically 5 grains of quinin sulphate in each No. 0 capsule.

Prophylaxis by Quinin

This is a time-honored method and during its long career it has met its "knocks and boosts," has had its enthusiasts, and its detractors. The latter are at their last gasp. What is perhaps one dying sigh of opposition is breathed in a letter of the reminiscent order from the pen of Retired Mayor Porter of the Royal Army Medical Corps and dated from Bombay. Apparently his thesis is that quinin is not only of no use as a prophylactic, but is actually the cause of malaria.

Setting this aside, the enormous weight of evidence is in favor of the efficacy of the method. In an estate of some 11,000 acres at Marathon, Greece, by this measure, with almost no other means of control, the malaria index in school children was reduced from nearly 100 per cent to about 2 per cent in three seasons. Experience has been similar in many other parts of the world, where the method has been applied with equal thoroughness. The cost is small, the figure for the Marathon district being about 30 cents *per caput*. The difficulties are evident, and are greatest with a backward population, such as the colored inhabitants of the South.

The method of Bass consisted in the administration of 10 grains of quinin sulphate, morning and evening, on two successive days of each week, generally Saturday and Sunday, during the malarial season, in the particular instance from May to December.

The net result was a reduction of 64 per cent in the malaria morbidity as compared with the previous year, using the history, the medical call, and blood examination as checks. This measure cost 57 cents *per caput*.

The Efficacy of Screening

As a sole method of malaria control, screening was tried out in a typical rural neighborhood of Arkansas. At the commencement of the experiment, in May, 1916, 12 per cent of positive results was given by the blood examination of the inhabitants. In December the re-examination gave 3.5 per cent of positive results, the net reduction being 72 per cent of positive results at a *per caput* cost of \$1.75. The significance of the results was checked by parallel examinations of untreated, similar neighborhoods.

The screens used were sixteen mesh galvanized iron, and their life was estimated at two years. With reasonable use the average life ought to be three years.

Minor Anti-Mosquito Measures

These were exclusively used in a district of 2,029 inhabitants. After an initial survey upon which a mosquito breeding ground map was prepared, the following measures were carried out: ditches were rectified and kept clean; small ponds and borrow pits were filled in; marshes were drained; undergrowth was cleared; larger bodies of water were cleared of edge weeds and were stocked with top minnows; stagnant and sluggish waters were oiled. These operations were extended for half a mile outside the area under test.

The result was a reduction of 72 per cent in the plasmodium index and of 70 per cent in the calls of physicians to cases of malaria, as compared with the previous year. The *per caput* cost was 63 cents.

Efficacy of Measures About Equal

It will be seen that these measures are about equal in efficacy. Over one season a reduction of something like 70 per cent in malaria morbidity may be looked for from the exclusive but rigorous application of any one method. As might be predicted, experience elsewhere has shown that over several seasons the reduction runs in a roughly geometric progression.

The most expensive measure is screening, but, at \$1.75 *per caput* per annum, even this is not prohibitive. Owing to the increase in comfort resulting from the exclusion of mosquitos and flies, this measure is likely to be popular—something which can scarcely be said of systematic quininization.

The cumulation of all, or a combination of some of these measures, has generally resulted in a still greater one-season reduction. This was the case at Ismailia, and the experience has been repeated in many places where the instances have been especially favorable to control.

Some of these measures are better suited to urban than to rural districts. This is notably the case with the minor anti-mosquito measures which on an extended scale among scattered rural habitations would, in most cases, be impracticable.

Short of major drainage, therefore, the methods of choice in rural districts are screening and quininization. For the satisfactory application of the latter it is evident that for some time to come educational campaigns must play an important part. It would also be a part of the teaching to show the householders how to carry out, individually, some of the anti-mosquito measures that in towns are attended to collectively.

Mosquito and Malaria Control and Rice Cultivation

The conditions of rice cultivation are such as to render mosquito control of peculiar difficulty. For long periods rice stands in water, being practically a swamp grass. Hitherto this condition has been considered incompatible with mosquito destruction, and highly embarrassing to other methods of malaria control.

The two papers by Geiger and colleagues present a much more hopeful view. The first deals with experiments on mosquito control in rice fields; the second, with malaria control in a rice growing district.

In each of two farms five one acre plots were used for experiments. Five were set aside for controls and the following methods were tested, with the result shown:

1. Fuel oil from drip can at water inlet.
2. Two-plus-one mixture in the same way. These two methods failed. The oil was held up, near the source, by the rice stalks and failed to spread.
3. Sawdust saturated with the same oils. This gave satisfactory distribution and larvicultural action without injury to the crop.
4. Introduction of top minnows. Although the minnows congregated in the deep water near the inlet and along the levees, the results were not altogether unsatisfactory. There was a great reduction in the number of larvae, and no large larvae or pupae were found. Probably, therefore, the fish devoured the mature larvae and those found were not of significance from the public health standpoint.
5. Intermittent flooding was tried, but cannot be regarded as a practical measure on account of the expense, and because of the

impossibility of removing the larvae, by this means, beyond the flight limits.

The second paper covers with great detail the practical points in malaria control in a rice growing district. Lonoke has a population of 1,500. In 1917 29 per cent of the population were infected with malaria, with four deaths. In 1918 there was one case of malaria and no deaths from that disease.

The measures which produced this remarkable result are detailed in this paper. They were: sterilization of carriers by the administration of 10 grains of quinin sulphate a day for 30 days; screening; and mosquito control.

The discovery during this work of nineteen persons whose blood contained plasmodia, but who presented no clinical signs or history of malaria emphasizes the need for adequate blood examinations and for sterilization of carriers. The same point is brought out by Bass in his paper No. VI.

In the course of this work observations of capital importance on the flight of engorged female anophelines (*A. quadrimaculatus*) were made. The greatest flight recorded was one mile. The maximum flight yet observed is 1.7 mile.

Economic Loss Due to Malaria

"We Americans are paying \$100,000,000 each year for the privilege of having chills and fever," says LePrince. In a survey of three typical Texas rural communities, containing 179 white and 119 negro families, the annual cost of malaria was estimated at \$12,000. Applying this to the part of the population of Texas similarly exposed we arrive at \$10,000,000 as the *direct* annual loss.

Gray made a house-to-house canvass in a California district, with a population of 1,300. The district was valley and foothill land on each side of the Sacramento River, having an area of 32,000 acres. About 56 per cent of the population had malaria in 1918. The direct cost to the families in labor loss, medical service, and medicine was \$10,400, or \$31.70 per family per annum. The indirect cost cannot be readily estimated, but one item of it, the depreciation of property values, is conservatively estimated at \$250,000 for the fifty square miles.

In this locality the malaria is subsequent to and certainly caused by irrigation, particularly by seepage from a canal running along the shoulder of a slope. In such a case major operations would be justified and would, even on the present basis, cause such an appreciation as would repay the expenditure in four years. The estimated costs are: First year \$22,000, of which

\$12,000 is for agricultural drainage and correction; second year, \$5,000; third and subsequent years, \$3,800.

For details of the technic of the blood examinations and of the anti-mosquito measures, the reader is referred either to the papers here reviewed or, better, to a very important report on malaria control published in the Public Health Bulletin. An immense amount of valuable information is to be found in the two pamphlets by Hoffman published by the Prudential Insurance Company of America.

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CLINICAL CONGRESS OF SURGEONS

The Clinical Congress of the American College of Surgeons, organized ten years, has realized its main objectives in demonstrating to picked members of the profession the highest standards of surgical and hospital methods, and in promoting a close fellowship between the American and Canadian surgeons whose professional ethics and morals are unimpeachable. Their Ninth Annual Convention in New York, October 20 to 25, has been of unusual interest. The collective clinical material of this center is not surpassed by any other city in the world, while the added stimulus of war work and certain changes of scientific arrangements and medical thought will give new interest to the proceedings. The work in standardizing hospitals, with which the American College of Surgeons has identified itself, will receive a distinct impetus, as the hospital demonstrations are staged to work under conditions that are ideal from every angle and the observing surgeons will be prompted to duplicate these facilities in their own hospitals and cities. John D. Clark, M.D., of Philadelphia, made the burden of his message as retiring president the urgency of strengthening of medical teaching researches, particularly facilities for post-graduate work and for facilities for research. He

says the practical ability of the American surgeon should be supplemented by a fine sense of research. The program of the Clinical Congress appears elsewhere in these pages.

Among the prominent surgeons in attendance are Sir Arthur Bowlby of London, Sir Robert Jones of Liverpool, and Major Gillies of Sidecup.

CENTRALIZATION OF HEALTH ACTIVITIES

In a recent speech before the Royal Society of Medicine discussing the English Industry of Public Health, as reported in the October issue of the *Canadian Journal of Medicine and Surgery*, Sir William Osler ably discusses the urgent need of consolidating and coordinating the various departments which deal with public health. He charges the medical profession with the "intellectual weakness in high places" which has suffered the pace to be set by "organized ignorance."

Three critical and contentious points are emphasized which are of universal interest and characterize the issues here as well as in England. The insurance, tuberculosis, syphilis, maternity, and child welfare legislations have brought the state to the door of the practitioner and "willy-nilly," he has become in some measure the public servant.

The first point of contention is stated in the form of a question: "Is the scheme possible in which the physician is a paid official of the state; yet independent—a civil servant, yet alive to the needs of science?" Doctor Osler fears the effect of such a scheme upon the competition which has played so important a part in the profession for the last 2,500 years. "It may be possible," he says, "to work out such a scheme, but not, I trust, at the sacrifice of the independence of the independent practitioner."

The second point in his discussion relates to the relation of the state to research. Even the brilliant work which has been accomplished in preventive medicine has been unable in certain quarters to overcome an invincible prejudice against state aid. There are no grounds whatever, says Doctor Osler, for this distrust. Aside from the achievements of the Lester Institute, practically all the first-hand discoveries in the fields of infections have been made by men in official harness. He considers the debt of the profession one hundred fold greater to the Government for its researches in preventive medicine than to all the universities combined. "All such objections," he says, "are sufficiently answered by the series of splendid monographs issued during the war by the National Research Committee."

The third question, "The Hospital in the Scheme," has caused even more dissension. It seems to be the consensus of opinion that in any place the hospital should form the center, or the unit, around which the general practitioners should unite and form a thoroughly working combination of all the voluntary agencies within the state. The difficulties of attaining this ideal are sensed by all.

The advantages of such organization would be chiefly in the development of clinical men. "The clinical consultant," says Osler, "should be a life time man with a good salary. He should have a hospital of from eighty to one hundred beds with the control of out-patients and a staff of paid assistants. He would see the special cases sent from neighboring doctors, and direct the work in the clinical laboratories." The benefits of such an organization are apparent, as "we all know that pure medicine as a study has not of late been fostered in our county hospitals, some of which are still without the essential

clinical laboratory." The consultant would be the center of social service work, which would make the out-patient department the strong arm of the hospital in its relation to the public. A centralized department of health, backed by a united profession could undertake important reforms which at present seem hopeless.

SOUTHWESTERN TUBERCULOSIS CONFERENCE

The fourth Southwestern Tuberculosis Conference held at Long Beach, Cal., October 1 to 3, was undoubtedly the most successful meeting since the organization of the conference district, from the standpoint of program as well as attendance. Papers were presented by workers from tuberculosis and health organizations in the states of Arizona, California, Colorado, Kansas, New Mexico, Oklahoma and Texas and were supplemented by addresses by health workers of national repute. The conference registered in a most forceful manner the great progress made in the anti-tuberculosis campaign particularly in the southwest.

The first days' sessions dealt largely with the question of occupational therapy for the tuberculous. This subject was introduced by a very able paper read by Dr. H. A. Pattison, medical field secretary of the National Tuberculosis Association, on "Occupations for the Tuberculous." The paper showed the result of careful research on the after care of the tuberculous and suggested the advisability of an industrial community for arrested cases of tuberculosis. Other phases of the subject were discussed by Miss Mertice C. Buck, vocational instructor of the California Tuberculosis Association and Miss Agnes L. Murray, divisional director, Bureau of After Care, American Red Cross, Denver.

A symposium on public health nursing on the second day, was led by Mrs. Bessie A. Haasis of the National Organization for Public Health Nursing with a timely paper on "Application of Teaching Principles to Public Health Nursing." The general discussion which followed the exposition of some elementary principles of educational psychology opened up a new field for thought for the nurses and other workers present.

A report of the National Committee on the Indigent Migratory Consumptive was presented by its secretary, Dr. Severance Burrage, of Denver. Considerable interest was evidenced in the progress noted in the report, and much valuable data on the subject was introduced in the discussion by Dr. Philip King Brown, San Francisco; D. E. Breed, Austin; and Mrs. E. L. M. Tate-Thompson, Sacramento.

A departure from the general conduct of the conference was the holding of a special medical section. This was held under the chairmanship of Dr. Philip King Brown, of San Francisco. The medical session included papers by Lieut.-Col. Alexis Forster, Colorado Springs; Dr. James A. Miller, New York City; Dr. Mary Jones Mentzer, San Francisco; Dr. L. J. Moorman, Oklahoma City; and Dr. John W. Flinn, Prescott, and others. The experiment of having a special medical section was generally acclaimed to be a success and will probably be repeated in future conferences.

A unique feature of the sessions was an Americanization Clinic conducted by Dr. James A. Miller, of New York City, in which he demonstrated the many factors to be considered in dealing with patients of foreign birth. His subjects were patients of Mexican, Indian, Japanese, and Greek nationalities.

At the evening session, open to the general public, ad-

dresses were made by Dr. Livingston Farrand, chairman of the Central Committee of the American Red Cross; Dr. Jas. A. Miller, New York City, and Dr. William Palmer Lucas, Berkeley. Doctor Farrand's subject was "The Health Program of the American Red Cross." This was the first time in which these three noted health workers appeared on the same platform since their return from France.

Other subjects considered at the Conference were the Modern Health Crusade and the selling of Red Cross Seals. The 1920 meeting will probably be held in Dallas, Tex.

AMERICAN JOURNAL OF NURSING

Editorial comment in the September, 1919, issue of the *American Journal of Nursing* makes note of the appointment of Miss Clara D. Noyes as director of the department of Nursing of the American Red Cross to succeed Miss Delano, in whose place she has been acting director.

In the same issue S. J. Crumbine, M.D., presents a paper on the "Socialization of Preventive Medicine Through the Public Health Nurse," in which he exalts the public health nurse to the rôle she must assume as nurse, diplomat, reformer, and judge in the various functions she must perform.

The "Social Work of Industrial Welfare Nursing," is discussed by Frances McGee. The first aid room is by preference as close as possible to the men's work, no small part of prevention of serious consequence being dependent upon prompt care and upon the proper handling of minor injuries. The function of the industrial nurse varies with the industry and the lines she is hired to develop, but there is always educational work to do and she must possess the social spirit. An industrial nurse of the right type offers a lower insurance rate, continuity of service, contentment and loyalty. The men find in her a friend in need and a social interpreter.

C. C. Pierce, M.D., of the United States Public Health Service, discusses "The Nurse as a Factor in the Prevention and Control of Venereal Disease." Because public health work is of necessity carried on in and through cooperation with the various state boards of health and because the venereal diseases are so interwoven with every other physical and social ill of the people, the direct educational and constructive measures necessary for the control of venereal disease depend largely upon the nurse. The most urgent problem is not to determine the potential usefulness of the nurse in this connection, but to find a sufficient number of women with the special training necessary to do the work. Schools are reminded of their responsibility in the matter and institutions are urged to provide for the proper hospitalization of such cases.

The standards of "Pre-Hospital Training for Nurses" in the fundamental sciences are outlined by W. D. Christian, M.D., of Richmond, Va. He recommends that the summer schools in medical colleges provide brief practical courses for nurses. Very definite scientific training is necessary in this vocation and it is essential to provide the mental discipline and the power of nice observation these studies promote.

Other articles of interest are: "The Need of Cooperation Between the Head Nurse and the Instructor," by Permilia Murnan Doty, and "The Establishment of Foreign Training Schools," by Clara D. Noyes.

Parasites on human society are not many; and they are to be pitied, for they never know the joy of work.—Robert W. Mackenna in "The Adventure of Life."

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

HANDBOOK ON SANITATION. A Manual of Theoretical and Practical Sanitation. For Students and Physicians; for Health, Sanitary, Tenement House, Plumbing, Factory, Food, and Other Inspectors; as well as for Candidates for all Municipal Sanitary Positions. By George M. Price, M.D., author of "Tenement House Inspection," "Epitome of Hygiene and Public Health," "Hygiene for Nurses." Director of Investigations, New York State Factory Commission; director of Joint Board of Sanitary Control, etc.*

Primarily intended for practising health, sanitary, tenement and other inspectors, and only secondarily for students hoping to become inspectors, this book succeeds in its first aim, but is rather weak in its achievements relating to the second.

It is divided into three main sections, Sanitary Science, Sanitary Practice, Sanitary Inspection as a Profession and an Art. It ends with about thirty pages of civil service examination papers for New York positions and a collection of tables, data, and definitions, useful to inspectors of all the kinds mentioned.

Brief, concise, conventional, dogmatic, giving little discussion or explanation for the student, it covers pretty well the chief points that the ordinary inspector requires. It is not properly a handbook of sanitation, but of inspection; and it relates chiefly to those items of building construction and equipment; of water, food, and air supplies; and of waste disposal systems, which by tradition, or in fact, relate or are supposed to relate more or less to the health of humans.

It is thus a systematic aggregation of rules of practice in the sanitary inspections of today rather than a treatise on the subject of the relations of surroundings to physical welfare; and it will appeal chiefly to that type of mind which prefers the memorizing of concrete statements, however unrelated they may appear to be, than to that type which demands a complete understanding grasp of the subject as a whole.

Numerous very general statements are made, describing "unsanitary" conditions as "dangerous" to health or life, but there is little or no attempt to correlate any definite factor in the unsanitary conditions with any specific injury to the human.

Modern sanitation is in a state of flux; properly, details of sanitation should be advocated or condemned as they react favorably or otherwise on the physiological operations of the humans concerned; and the relationship between a given bad or good condition in the surroundings and the physiological harm or benefit it achieves should be made clear and definite in a modern text-book, for the day of glittering generalities is nearly over, we hope.

Some rather odd statements are made; as for example, page 50, that "whether there is a public water purification plant or not, every individual household should provide some means of local purification" (reviewer's italics).

This statement certainly implies a remarkably frank skepticism of modern municipal water purification on the one hand, and, on the other, ignores the uncounted naturally pure supplies used by nearly half the population, i. e., from springs and wells.

In specifying methods of private water purification, boiling is advocated as the cheapest, most available, and most efficient, but no one who has passed through a siege of boiled water, as during a water-borne epidemic, will agree very enthusiastically with this statement, except as to its (theoretical) efficiency. Since no community, even in an epidemic, ever does carry it out uniformly, thoroughly, all the time, its practical efficiency is low, except insofar as the ordering of boiling is a soothing balm to the health officer's conscience.

To advocate boiling of all water, all the time, from all sources, pure, purified or otherwise, would entail an almost intolerable, and quite unnecessary burden; and binding unnecessary burdens is one crying sin of the older sanitation we moderns should scrupulously avoid.

Our author avoids any reference to impounding waters —perhaps the most conclusive method of purification we possess.

We believe that the author should expand the theoretical side very much and connect it with the practical, for the use of students; or, on the other hand, omit entirely the present superficial, inadequate, and sometimes misleading explanatory statements offered, leaving the concrete details as a good compilation for inspectors in practice.

WHAT IS AMERICA? By Edward Alsworth Ross, professor of sociology, University of Wisconsin. Author of Social Control, Social Psychology, etc.†

In these days of stress and turmoil the placid little book of Professor Ross makes delightful before-going-to-bed reading and invokes most pleasant dreams. You see, for example: Labor surrounded by such dignity and "so respected that a national holiday, Labor Day, is set aside in its honor" and all this in spite of the fact that "before the war nearly half of the men in organized industry earned less than \$600 a year, while four-fifths received less than \$750." You see a society which has attained "a fair degree of success in the control of the sex relation" as testified by "the fact that out of a hundred white children ninety-six or ninety-seven are born in wedlock." You forget for the moment the clamorous claims of "birth control" for open recognition, and the somewhat disquieting figures of the social hygienists to the effect that 15 or 20 per cent of the population is syphilitic and 70 per cent of males have had gonorrhea at least once in a lifetime.

*John Wiley & Sons, Inc., New York. \$1.50.

†The Century Co., New York, 1919.

The stupendous strides America has made of late on the road toward better health organization find only a very faint echo in Professor Ross's little book. Having written the book in 1919, Professor Ross is frequently compelled to use statistical information almost ten years old. With the rapid tempo of modern life a decade is a long lapse of time. It is to be hoped that this interesting summary of American life will be enlarged and brought up to date when the results of the new census become available.—E.H.L.C.

PLASTIC SURGERY, ITS PRINCIPLES AND PRACTICE. By John Staige Davis, Ph.B., M.D., F.A.C.S., Instructor in Clinical Surgery, Johns Hopkins University.*

To this book probably belongs the distinction of being the first systematic text limited to plastic surgery. The author states in his preface that the purpose of the volume is to show the general practitioner the possibilities of plastic surgery, and to start the student, or beginner, on the right track. With this in mind, he has gone more carefully and with more detail into the general considerations and principles treated in the early chapters; for example, chapters IV and VI, on the "transplantation of skin" and "pedunculated flaps," are written most simply and clearly. The special attention paid this particular section of the book suggests the author's peculiar interest and very wide personal experience. Under the chapter on the treatment of wounds, debridements, and the newer antiseptics and their methods of application are discussed briefly, serving well to summarize the abundance of literature on these subjects produced during the war.

I can not agree with the author that a general anesthetic is necessary in the injection of a hemangioma with boiling water. I have personally watched Dr. John Wyeth inject these tumors painlessly under local anesthesia, and, during my association with Dr. R. E. Farr, we have repeatedly made satisfactory injections by the same method.

The author barely mentions the splendid work and technic of Doctor Brophy in the closure of cleft palate, but states that he has never felt justified in using the method.

The reviewer's experience coincides with that of numerous other surgeons who have been called upon to do a wiring or crushing operation on older children or adults, on whom a closure of the lip had been first done with the intent of drawing together the front of the cleft. In all of these cases not only was the cleft not closed but the uncorrected deformity required radical and extensive bony reconstruction. However, visits to the clinics and study of the writings of Sir Arbuthnot Lane, and Colonel Fagge, his associate, who now does the cleft palate operations at Guy's Hospital, and, also, of Mr. Berry, of the Royal Free Hospital in London, disclose the fact that there is a marked and legitimate divergence of opinion as to the proper methods of operating, and the logical sequence of operations. After a visit to Brophy's clinic and an observation of his end results, one must conclude that he comes the closest to restoring the normal bony arch and, consequently, the facial contour.

The author is to be congratulated on the excellence and clearness of the many illustrations. The bibliography at the close of each chapter indicates much painstaking effort, is a valuable adjunct, and should serve as an excellent reference to the reader who wishes to go more deeply into the literature on any particular subject. This

volume should form a valuable addition to the library of any medical student, surgeon, or medical society.

THE PRACTICE OF PEDIATRICS. By Charles Gilmore Kerley, M.D., professor of diseases of children, New York Polyclinic Medical School and Hospital.†

It was a happy thought on the part of the author to dedicate his book to the practitioner students, for this book appeals primarily to the practising physician who seeks in a text book on any subject practical and simple suggestions in the treatment of various disorders. The value of the book is evidenced by the many times it was reprinted since its appearance in 1914. It shows that the practitioners of the country use it and like it. A suggestion or two might, however, not be out of place. While the reader expects to get the personal experience of the author, the "I" of the book is a little overdone. The author repeats too often that he has seen this, that he has treated so many cases of a certain disease, something that is taken for granted by the reader who comes to this text for advice.

The classification of diarrhea is probably a little old-fashioned. We can no more put all gastrointestinal disturbances into a narrow frame of acute gastritis, acute gastroenteric intoxication and mucous colitis. One does not necessarily have to follow the Finkelstein or Czerny classification of alimentary disturbances, but the scope of diarrhea in infants must be wider than the one put forth by Kerley. Nor can everybody agree with the author that diarrheas should be treated by calomel.

These suggestions, however, do not detract much of the general usefulness of the book, which is of great value to the student and practitioner alike.

WHAT WE KNOW ABOUT CANCER. A Hand-book for the Medical Profession. Prepared by a committee of the American Society for the Control of Cancer.‡

The American Society for the Control of Cancer has been in existence and working effectively for a number of years, having for its object the "dissemination of facts in regard to cancer to the end that its mortality may be reduced by a wider knowledge of the disease."

The effort represented by the present pamphlet has perhaps the most far reaching possibilities for good of any single attempt to lessen cancer mortality undertaken in this country.

It is no longer necessary to argue the point that delay is the one great factor in cancer mortality. At least four-fifths of cancer deaths could be prevented by early recognition. The conditions necessary for recognition of cancer in ample time for cure are not ideal but distinctly practicable. Public education is one important pathway of improvement, but education of the medical profession itself is of equal if not greater importance. Statistical studies have shown that in the majority of cases the doctor has had the cancer patient "under observation" over a year before efficient curative treatment is instituted. During this year the majority of change from curable to incurable. As the pamphlet somewhat mildly puts it, "The conditions call for a far keener appreciation of responsibility for the mortality from cancer than now generally exists in the medical profession." . . .

"The annual increase in the cancer death rate is approximately $2\frac{1}{2}$ per cent. The recorded cancer death rate has practically doubled during the last forty years."

(Continued on Adv. 22)

*P. Blakiston's Son & Co., Phila., 1919, \$10.00.

†W. B. Saunders Co., Philadelphia, 1919, \$6.50.

‡American Medical Associated Press, Chicago, 1918, 10c.

Men and Women Who Begin Each Day Only Half Rested are Rarely, if Ever, Efficient Workers

WORRIES, indigestion, improper food and poor ventilation are the common causes for a "poor night's rest." But, noisy, uncomfortable beds are also to blame for this condition.

Most physicians, public health officials and industrial welfare workers now realize the importance and health-building value of sound, restful sleep. Every time they impart this knowledge to those who still cling to old-fashioned notions regarding beds, springs and close, "stuffy," poorly ventilated sleeping rooms, they are contributing to the cause of public health.

Sound, healthful sleep—the sleep that restores, invigorates and fits one for the next day's activities—depends as much upon the choice of bed and bedspring as it does upon proper sleeping room arrangement and fresh air.

Simmons Beds are first of all designed and built on the principle that *a bed is made to sleep in*.

They are so constructed as to entirely eliminate the common faults of the old style bed that creaks, groans and rattles with every turn of the sleeper, which de-

feats his or her chances of quiet, and causes that feeling of unstableness which prevents complete relaxation.

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BOOKS OF THE MONTH

(Continued from page 650)

It is not possible here to abstract this pamphlet which is already so condensed. The general facts concerning cancer are outlined and then each important type and site of cancer is taken up in detail and the forms, symptoms, standard treatment, and results to be expected are outlined for each type. The ultimate possible good obtainable from the widespread dissemination of this pamphlet is so great that we would urge every possible means to get into the hands of as many medical men of all classes as possible.

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AN INTRODUCTION TO NEUROLOGY. By C. Judson Herrick, Professor of Neurology in the University of Chicago. Second edition, revised.*

The first edition of this book received a deserved favorable reception by the medical profession. In the second edition there has been no departure from the original plan of the work, but it has been thoroughly revised and somewhat enlarged. This edition will surely meet the same favor as was accorded the first.

GENITO-URINARY DISEASES AND SYPHILIS. By Henry H. Morton, M.D., F.A.C.S. Fourth edition, revised and enlarged.†

A handbook which reaches its fourth edition in this day of prolific writing carries its own best endorsement. Morton's book covers as completely as possible in one sizable volume the subject of genito-urinary diseases and syphilis. The illustrations are satisfactory and the colored plates especially meritorious.

LABOR AND RECONSTRUCTION IN EUROPE. By Elisha M. Friedman, Editor of "American Problems of Reconstruction."‡

The volume furnishes a valuable report on labor reconstruction agencies and plans for labor reconstruction in most of the European countries, largely Great Britain, as more than half of the 200 pages of the book are devoted to a discussion of the labor reconstruction plans of England.

In its subject matter the book covers two principal topics: (1) agencies charged with the problem of readjustment, and (2) specific adjustments suggested and attempted. Aside from covering the subject of labor adjustment in allied countries, the author attempts also to discuss labor reconstruction in the countries of the central powers—Germany, Austria, and Bulgaria. In the latter connection, however, the author realizes the relative unsatisfactoriness of his work due to the absence of the needed documentary data.

The volume shows the existence of some reconstruction agency or other in almost each of the principal countries of the world. No reconstruction agencies, apparently, exist in China and Turkey. These countries have apparently followed the original lead of the United States in hoping that the labor and economic results of the war will automatically readjust themselves. The author, in

(Continued on page 24)

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†C. V. Mosby Co., 1918, \$7.

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BOOKS OF THE MONTH

(Continued from page 22)

a fair and impartial manner, calls attention to the fact that while there is unanimity with reference to the necessity for a scientifically systematic labor reconstruction, the methods to be used in arriving at the desired result vary with (1) the relative position of the various schools of thought represented in the existing political parties, and (2) variations due to the specific economic position of the country in question. The book gives a very interesting account of the various economic questions which Germany, England, and France are attempting to solve in the respective fields of their labor reconstruction work.

The volume contains a comprehensive bibliography and reproduces verbatim a considerable number of original public documents, some of which have not as yet been published in an easily available form. In this respect it is performing a very useful function which has only partially, although thoroughly, been covered, by the United States Bureau of Labor Statistics in its publications known as the "Labor as Affected by the War" series.

DISEASES OF THE SKIN. By Richard L. Sutton. Second edition revised and enlarged.*

The second edition of Sutton's book, as anticipated, is an excellent volume, for the student, practitioner, and as a reference book for the specialist in skin diseases and syphilis. The careful and painstaking exposition of the histopathology of the various dermatoses stands out as one of the best features among many excellent ones in this handbook. One seldom sees between two covers a volume so free from chaff. It is most heartily endorsed.

CREATIVE IMPULSE IN INDUSTRY, A PROPOSITION FOR EDUCATORS. By Helen Marot, Author of "American Labor Unions."†

This little book by Miss Marot is so full of thoughts and ideas as to make a review of it difficult. To be appreciated it should be read and studied by all who are interested not only in education but in the stupendous problems of industrial readjustment now facing this country. Intelligence of thought, logical pursuit of deductions, and the flowing style make this book a fascinating piece of literature. One may not agree with everything the author says but, whether agreeing or not, there is so much food for thought in the book as to make it a most valuable contribution.

ANIMAL PARASITES AND HUMAN DISEASE. By Asa C. Chandler, M.S., Ph.D., Instructor in Zoology, Oregon Agricultural College, Corvallis, Ore. First thousand.‡

"It is the belief of the writer that one of the most pressing needs of the present time is the education of the people as a whole in the subjects of vital importance with which this book deals, and an increased interest in this field of scientific work." It is, indeed, a pleasure to read through this book and see how well the author has achieved his object. The reviewer believes that there is no field of medical literature more important than public health education. The subject, however, is difficult to present and many so-called popular books are either unscientific or full of fallacies meant to appeal to popular prejudice. This book, while thoroughly scientific, is written in a readable form, is thorough, and certainly is a most valuable contribution for parasitologists, public

health and immigration service officers, physicians, teachers of hygiene or domestic science, students, travelers, and "to the farmer or merchant who is interested in the progress of science and civilization."

SURGICAL THERAPEUTICS AND OPERATIVE TECHNIQUE. By E. Doyen, in three volumes, English Edition prepared by author in collaboration with H. Spencer-Browne, M.B., Cantab., etc. *Elève de l'institut Pasteur; Physician, and Chef de clinique de l'institut Doyen.*§

Doyen's *Surgical Therapeutics and Operative Technique* comprises three volumes, of which only the first two have been received by the reviewer. As the title indicates, the treatise covers the realm of general surgery from a therapeutical standpoint. Diagnosis is not dealt with.

Volume I contains an introduction with a brief review of the surgery of the nineteenth century. A section on general surgical technic deals with the fundamentals, incision, clamping, suturing, etc. The author describes his surgical institute. The remainder of the volume is devoted to the typical operations of the cranium, brain, sinuses, and, also, operations on the eye, ear, nose and throat.

Volume II takes up the regional surgery of the head, neck, thorax, and extremities. Only one operation of each type is described, namely, the operation used by himself. Very little reference is made to the work of other writers. The reader will probably be disappointed in not finding any bibliography. The index lacks detail, but it is possible that an index, covering the entire work may appear in the last volume.

The books are translated, or, rather, transcribed into English by Doctor Spencer-Browne. The English is clear and the matter presented in a readable form. The various sections are profusely illustrated, diagrams and photographs being liberally used.

Doyen's profound knowledge is apparent to even a casual reader. The reader visualizes the eminent French surgeon, boldly proclaiming his theories, carefully diagnosing his cases, and deftly operating in his own surgical amphitheater.

Doyen is a bond between the past and the present. He is an ardent admirer of the manual dexterity of the old surgeons who, without anesthetic, performed a variety of difficult operations. He describes the long, slow technic which many modern operators have adopted. Although realizing the importance of preventing loss of blood, he is opposed to the tedious methods of hemostasis often practised.

As a general surgeon, Doyen has little use for "over specialization." He believes that a man who can perform a skillful pyloric operation would also be able to perform successfully an operation on the uterus. Judging from his books, Doyen's hobby is his armentarium. Much space is devoted to instruments, many of which he has designed or modified himself. Each chapter contains a complete list of instruments which may be needed and usually also a photograph showing how they might be laid out for the various operations.

The books will be an interesting addition to a well stocked library, but as reference books for the student, or pathfinders for the young surgeon, the reviewer doubts

(Continued on page 26)

*C. V. Mosby Co., 1917, \$6.50.

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BOOKS OF THE MONTH

(Continued from page 24)

whether Doyen's *Surgical Therapeutics and Operative Technic* will be popular.

CLINICAL MEDICINE FOR NURSES. By Paul H. Ringer, A.B., M.D., member of staff of the Asheville Mission Hospital, Asheville, N. C., and of Biltmore Hospital, Biltmore, N. C.*

This little volume presents lectures on medical diseases delivered by the author to the nurses of the hospital with which he is connected. It seems that his aim to place in concrete form a fairly detailed description of all important facts has been carried out successfully. This new book might well serve as a basis upon which class-room lessons can be assigned and quizzes held.

A MANUAL OF GYNECOLOGY. By John Cooke Hirst, M.D., associate in gynecology, University of Pennsylvania; obstetrician and gynecologist to the Philadelphia General Hospital.†

Short manuals clearly reveal the author's personal judgment concerning the relative importance of the various topics which constitute the entire subject he endeavors to present in a thorough and at the same time concise manner.

It is interesting to note that in this small volume relatively more space is devoted to the consideration of leukorrhea, the operation of cervical dilation and curettage, the pathological sequelae of childbirth and endocrine gland therapy. One can readily appreciate this preferential choice in a manual designed for and dedicated to the undergraduate student. Some doubt, however, will be permissible concerning the wisdom of including, as Hirst does, special chapters dealing with the diseases of the urinary tract, of the rectum, and even with the diseases of the breast, in a manual of gynecology for which brevity and the elimination of all non-essentials are emphasized by its author as the chief characteristics.

THE MEDICAL AND SURGICAL ASPECTS OF AVIATION. By H. Graeme Anderson, M.B., Ch.B., F.R.C.S., Surgeon Lieutenant, Royal Navy; Surgeon, Royal Air Force Central Hospital; senior assistant surgeon, Belgrave Hospital. With chapters on applied physiology of aviation by Martin Flack, M.A., M.B., Lieut. Colonel, R.A.F., Director of Medical Research to the Royal Air Force; and the Aero-Neuroses of War Pilots by Oliver H. Gotch, M.B., Ch.B., M.R.C.P. (London). Surgeon Lieutenant Royal Navy, Royal Air Force Central Hospital; and an Introduction by the Right Hon. the Lord Weir of Eastwood P.C., Secretary of State for Royal Air Force.‡

Medical literature is not replete with works of this character, for which reason this book is all the more welcome and for this reason, also, the classification of the subject is largely pioneer work. The author is not overburdened with his own importance, has a clear conception of the subject, is a simple writer commanding easily understandable English, and in view of these facts has given us a work that is of distinct value, not only to the medical officer but to the aviation pupil.

The chapters on the psychology of aviation, the aero-neuroses, aeroplane accidents, the surgery of aviation, and the selection of candidates for aviation are very interesting and instructive. The authors have also included articles dealing with history of medical interest

(Continued on page 28)

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†W. B. Saunders Co., Philadelphia, 1918, \$2.50.

‡Oxford University Press, 1919, \$5.



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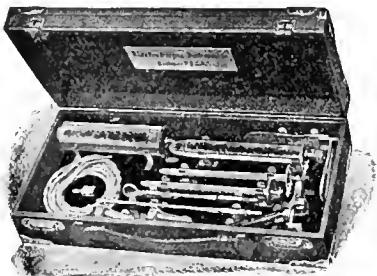
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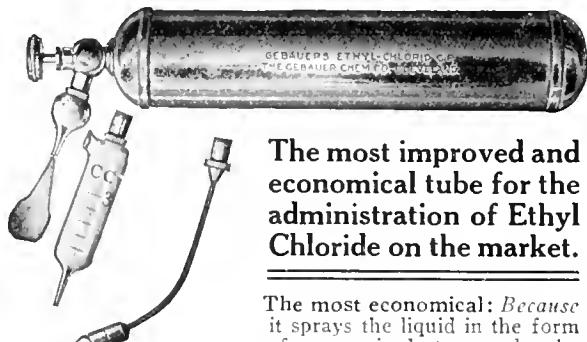


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BOOKS OF THE MONTH

(Continued on page 26)

in aeronautics and aviation, physiology of aviation, the injuries and destructive effects of aeroplane bombs, and aeroplane arrows, also aeroplane dope poisoning. There are many photographs of aeroplane accidents that help sustain interest in this book.

VENEREAL DISEASES. A Practical Handbook for Students. By C. H. Browning, M.D., Director of the Bland-Sutton Institute of Pathology of the Middlesex Hospital; and David Watson, M.B., C.M., lecturer on venereal diseases, Glasgow University; surgeon in charge of the Venereal Department, Glasgow Royal Infirmary.*

As one of the deplorable sequelae of the war we must expect an unavoidable increase in the number of men suffering from venereal diseases. It is safe to assume that within the next few years an increasing number of physicians will seek reliable information concerning the pathology and therapy of gonorrhea and syphilis, and their relation to other diseases. While nothing entirely new has been produced as the result of extensive war experience to be offered in this volume, the appearance of a new contribution in the field in itself is noteworthy if it presents available information in a more suitable manner. Such seems true for the short handbook before us. All the essentials of these diseases are discussed clearly and specifically from the viewpoint of practical application. There are many splendid illustrations and color plates that of necessity will prove most valuable.

In an introduction to the book Sir John Bland-Sutton compares the volume in its usefulness for students and practitioners to the Nautical Almanac for mariners. This comparison is well justified.

SURGICAL ASPECTS OF TYPHOID AND PARATYPOHID FEVERS. Founded by the Hunterian Lecture for 1917, Amplified and Revised. By A. E. Webb Johnson, D.S.O., M.B., Ch.B. (Vic.), F.R.C.S. (Eng.); Temporary Colonel, Army Medical Service; consulting surgeon, British Expeditionary Force, France. Hunterian professor of surgery, Royal College of Surgeons of England; assistant surgeon to the Middlesex Hospital. With foreword by Lieut. General T. H. Goodwin, C.B., C.M.G., D.S.O., Director General, Army Medical Service.†

W. W. Keene in 1898 published a book on the surgical complications and sequels of typhoid fever which has been known as a standard authority on the subject. The author recognizes this fact and proceeds to present additional information that has been obtained on the subject subsequent to the publication of Professor Keene's book. Forty-one pages are devoted to history and the publishing of ancient photographs. The student of the surgery of typhoid and paratyphoid will gain nothing of practical value by studying this part of the book.

The increased number of fever cases which must occur in trench warfare has given the author an exceptional opportunity for study of this subject. The "carrier" problem is one of immense interest and importance, not only to the army but also to the civil community and the views regarding this and the role played by the spleen are ably set forward. Complications involving different organs, tracts, and systems are discussed adequately, in this book, and the surgical treatment of these complications taken up in detail.

*Oxford University Press, New York, 1919, \$6.50.

†Oxford University Press, 1919, \$4.50.

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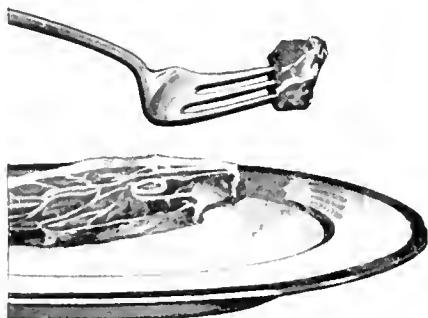
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Medical Chautauqua at Dayton

A medical chautauqua was held recently at Dayton, O. It was conducted much the same as an ordinary Chautauqua except that it was purely for instruction and not for entertainment. Specialists of national reputation discussed subjects on which they were experts.

MODEL ORDINANCES FOR THE SUPPRESSION OF VENEREAL DISEASES

The United States Public Health Service has prepared and issued a number of model ordinances which have been adjudicated and have proved successful in combatting venereal diseases. Among the ordinances in compilation are: General Venereal Disease Control Ordinance; Hotel and Rooming House Licensing Ordinance; an Ordinance Regulating Public Vehicles; an Ordinance Regulating Public Dance Halls; the "Tin Plate" Law; an Ordinance Prohibiting Advertisement of Venereal Disease Nostrums; the Restaurant and Grill Booth Ordinance; Ordinance Prohibiting the Sale of Venereal Disease Medicines Except on Prescription; Massage Parlor Ordinance; and additional ordinances in various states relating to the protection of the public against venereally infected persons.

LABRADOR TO HAVE HEALTH CENTER

A Health Center is to be established in Labrador this winter by the Young Women's Christian Association which will be similar to those it has established in New York and to those which it hopes soon to have in operation in other of the large cities of the United States. The work will be under the direction of the Social Morality Committee of the Association.

Dr. Vivia Belle Appleton of San Francisco, has just returned from France where she established what she terms a "Well Babies Clinic" under the American Red Cross, and is to take charge of the work in Labrador, which is being done in connection with the Grenfell Association. Doctor Appleton will make her rounds in a sledge drawn by a dog team. She is getting together an equipment of supplies including everything from food and physicians' supplies to warm fur coats and a leather sleighing suit.

A NEW GERM FOE OF MAN

An investigation just completed by Surgeon Edward Francis of the United States Public Health Service adds another to the list of disease germs afflicting mankind. The germ which bears the name of *bacterium tularensis*, was first isolated by Doctors McCoy and Chapin, of the United States Public Health Service, as the causative agent in a plague-like disease of rodents. It was not then known that the same germ also infects man.

Doctor Francis now finds that *bacterium tularensis* is the cause of "deer-fly fever" a disease occurring among the rural population of Utah and according to popular belief, initiated by a fly bite on some exposed surface of the body. The site of the bite and the neighboring lymph glands become tender and inflamed, and they commonly suppurate. A fever, like that in ordinary blood poisoning, develops and lasts for three to six weeks. The patient becomes very sick and is confined to bed. The first case known to have ended fatally was reported in 1919.

Thus far something like two dozen cases of this disease have occurred in Millard County, Utah, in each of the years 1917, 1918, and 1919. Whether the disease prevails elsewhere is not yet known.



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C. Churchill Croy, M.D.
 Bacteriological Dept.



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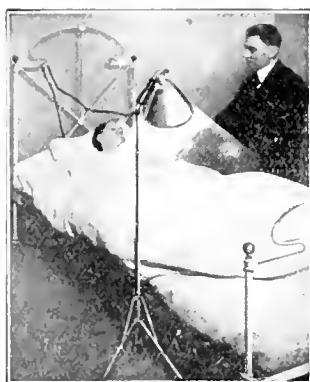
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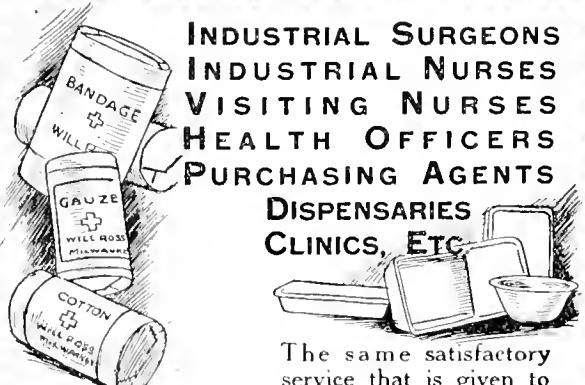
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English Ministry of Health

The English Ministry of Health Act which went into effect July 1, 1919, will be subjected to very close scrutiny by those who feel that strongly centralized health administration, bringing into coordination all the existing health agencies, is the only proper solution for the administration of health functions of a country. The text of the law is printed in *Public Health Reports*, 1919, XXXIV, No. 41.

PLAN RECREATION FOR ARMY NURSES

Eight Social Directors have been placed by the Young Women's Christian Association in the United States army hospital since the first of May, to organize social activities for the nurses serving there.

An army nurse has very little time of her own. To enjoy that time to the full, she must have something to do or some place to go planned in advance. The social director makes those plans for her—arranges hikes, picnics, swims, teas, stunt parties, and dances, as well as all sorts of athletic contests. The Association Hostess House is the recreation center for parties, and a home-like place for reading, writing, and resting.

Miss Beatrice Coe, the Social Director at General Hospital No. 41 at Fox Hills, Staten Island, N. Y., has charge of recreational work for 400 nurses. With them she has enjoyed everything from Coney Island trips to baseball games, from moonlight boat rides up the Hudson to marshmallow roasts and bacon bats nearer home. "I never knew girls could have such fun before!" exclaimed one girl, at the end of a party.

Hostess Houses are entertaining 1,000 army nurses a week in New York City alone, and twelve hundred nurses and aides are served by the Young Women's Christian Association in camps near the city.

HEALTH OFFICERS AND PHYSICIANS OPEN COUNTY HEALTH CENTER

Health officers, physicians, and welfare organizations of Alameda County, Cal., have established a public health center through which an effort will be made to co-ordinate all of the public health activities of the territory.

The Alameda County center is organized under a board of governors, composed of representatives from the hospitals, dispensaries, relief organizations, schools, civic bodies, welfare organizations, the health departments, and medical and dental associations. The center is under the direction of a technically trained, medical expert. It reports that 2,000 cases are being cared for each month at temporary headquarters established recently at Health Center No. 1.

The health center has been made the out-patient department of the new County Hospital of Alameda County. A considerable saving of public funds has been made possible in this manner by giving clinical care to patients not sufficiently ill to remain in the hospital.

The center also acts as a clearing house for the Arroyo Sanatorium, this work being carried on through the division of tuberculosis.

The board of supervisors of Alameda County has appropriated \$23,000 for the support of the clinical work during 1919. The executive officers of the center are located in Oakland at 1104 Federal Realty Building.

Attractive and intelligently written pamphlets and bulletins are being distributed to the citizens of the county, to employers, bankers and professional people. The work has received widespread endorsement among citizens and professional people.



The food that is
a laxative—
The laxative
that is a food

When Your Patients Are "Finicky"

or capricious tempt their appetite with Kellogg's Krumbled Bran. No indeed, it doesn't look like bran or taste like bran—yet it is all bran.

The daily use of this natural laxative stimulates the peristaltic waves and induces regular bowel movement.

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Physical Conditioning

So many patients, especially women, lack the initiative to follow general advice regarding exercises, dietary, and personal hygiene. Physicians acquainted with my work are constantly referring these cases to me for physical and mental "conditioning."

A woman can often inspire her sex to be and to do and hold her to this inspiration by regular correspondence as men cannot.

Every pupil's requirements are studied individually, and each is directed according to her needs and her strength.

This cooperative work with the medical profession is giving results highly gratifying to both physicians and patients.

I shall be glad to assist you with patients who need conditioning through exercise, diet, breathing, correct poise, relaxation, reduction of flesh, or building of flesh.



Susanna Cocroft
624 Michigan Boulevard Chicago

A MILLION WOMEN HEAR HEALTH LECTURES OF Y. W. C. A.

During the period between March 1 and July 1, 1919, the Social Morality Committee of the Young Women's Christian Association has given 1,870 lectures in twenty-two states of the Union with audiences totalling 189,950. During the month of June 1,068 lectures were given in thirty-six communities in twelve states with an attendance of 89,828. The total attendance at lectures given on questions of social, mental and physical health to women and girls throughout the United States since the organization of the Y. W. C. A. War Work Council in June, 1917, is 1,363,570.

THE SURVEY

In the issue of *The Survey* under date of Oct. 4, 1919, is an interesting comparison of "The Two General Strikes in Retrospect, Winnipeg and Seattle," by Edward T. Devine. In both strikes the objectives were of the ordinary kind, but in both cases there was added to the orthodox craft unionism the "one big union" idea, and in both cities the difficulties were exaggerated by the irrepressible and instinctive response to rallying class cries. In each case the strike failed to gain its objective, but in each case the strength of organized labor was demonstrated and the men seem reasonably content with their defeat. All sides of the question are set out in this article with extreme fairness. Ample evidence of discontent under existing conditions are disclosed by this study and "very positive proof of the capacity of men of English speech to misunderstand and misjudge one another." He found no evidence of "seditious conspiracy, of treason, of bolshevism, or of revolution."

The same number contains an article on "The Parliament of Labor" by Arthur Gleason. In the stand taken by the Labor Party for the nationalization of the mines, he sees history in the making in England which is as significant as the Russian Revolution. The British worker reserves his right for dissent or protest and wishes his revolution to come gradually as an organic change.

ESTABLISH PUBLIC HEALTH LABORATORY

A cooperative public health laboratory will be established and maintained at the University of New Mexico, at Santa Fe, as the result of an agreement between the State Department of Health and the University.

The purpose of the laboratory is to furnish scientific bacteriological tests necessary for the accurate diagnosis and treatment of certain diseases to the hundreds who are unable to pay and to physicians who do not have access to such facilities elsewhere.

Under proper conditions and without cost to the public the laboratory will be available for Widal tests for typhoid, diphtheria and Wassermann tests, examination of sputum, tests for rabies, bacteriology of water and milk, all tests to be made by means of specimens sent in by physicians. The only persons permitted to make personal visits to the laboratory will be those taking treatment for rabies.

The State Commission of Hygiene has recently been established at the University in cooperation with the Federal authorities. Prof. A. O. Weese, of the biological department, will be acting director of the Department of Hygiene at the University for the coming year. The work of this department will include physical education for both men and women concerning which important announcements will be made.

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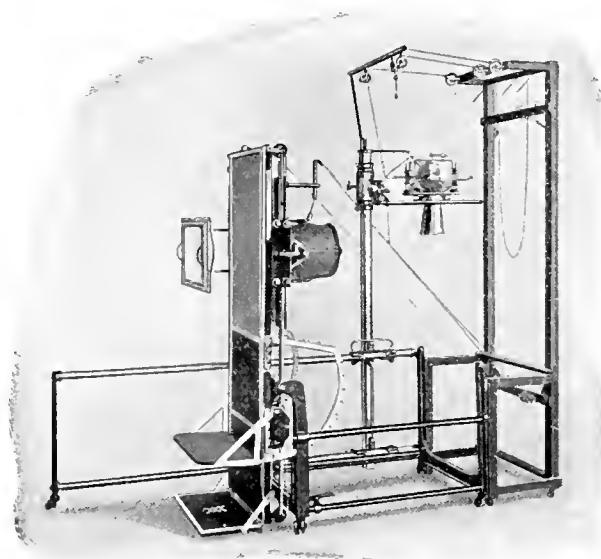
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THREE NEW HEALTH JOURNALS

Three new health magazines have made their appearance in the last two months. The *Health Prospector*, published by the Arizona Anti-Tuberculosis Association, presents in its initial issue an account of the public health campaign waged by the state organization. The Indiana Tuberculosis Association is sponsor for the *Hoosier Health Herald* which contains in its first issue a goodly number of articles dealing with the public health progress in Indiana. The *Health Round-up* is the name of the monthly organ published by the Texas Public Health Association. The first issue under date of October 1 gives the results of the national Modern Health Crusade Tournament; also an outline of the plans for the coming Red Cross seal campaign. All three of these organs will be a great help in enlisting the interest of the enlightened citizenship of the states in the health conservation drive.

WAR BENEFITED ENGLISH WOMEN

Women in England are better physically and mentally than they have ever been, according to Dr. Christine Muriell, of London. Being forced into industry by the war has resulted in their having more money than ever before, which means three square meals a day. With a mother who eats properly and sleeps well, the next generation will start out with a better chance than any previous generation. In regard to the lowered birth-rate, she says that she does not consider this an unmitigated evil because housing conditions are so bad that there is not room for what people there are. The question of venereal disease which has increased alarmingly is being solved by means of free clinics. All confidences are kept inviolate and all names absolutely secret which results in more patients presenting themselves for treatment. An educational campaign relating to sex and family life is being undertaken.

THE EFFECT ON HEALTH

In New York City, the Bureau of Preventable Diseases, under the direction of Dr. Louis I. Harris, recently conducted an investigation of over two thousand families visited because of tuberculosis or diphtheria or scarlet fever to determine what part the rising cost of living played in their economic status. It was found that over one-half had family incomes of less than \$900, and 21 per cent less than \$600. In more than 37 per cent of the families, meat was entirely eliminated from the dietary; even more of them did without eggs; nearly one-third used no butter. Children were found to be the chief sufferers, a large proportion of the parents being unable to buy milk, or being obliged to substitute loose for certified milk. The resulting picture of health conditions is too familiar to *Survey* readers to require reproduction here. One need only add that there is no reason to believe the experience of New York with respect to prices to be very different from that of other cities. In an interview with a representative of the New York World, a few days ago, Governor Smith explained that he had no power under existing laws to regulate or in any way affect the price of milk; in this matter, likewise, the situation in New York is not abnormal. Municipal and state action everywhere, in spite of innumerable investigations and commissions, has failed to check the upward trend of food prices; and practically all who are conversant with the problem now look to the federal government for effective, i. e., drastic action—action which they feel can no longer safely be postponed.

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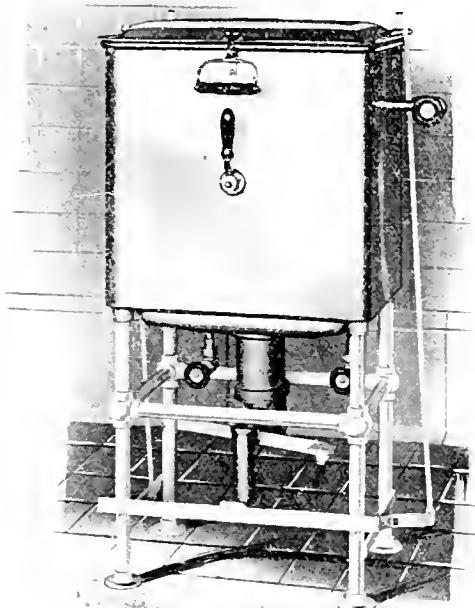
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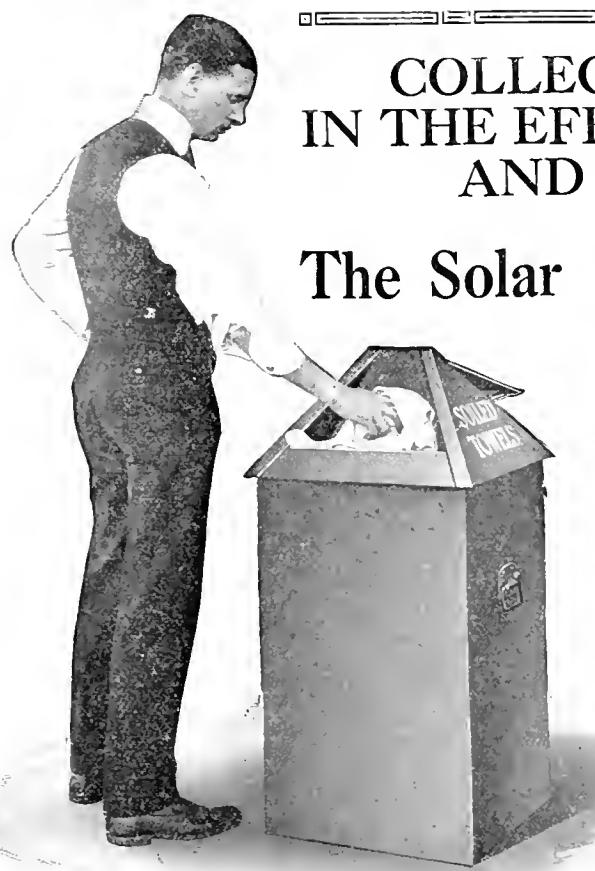
Next in importance to the human element in any undertaking are man's mechanical aids. Doubly so is this true of the Surgeon's work.

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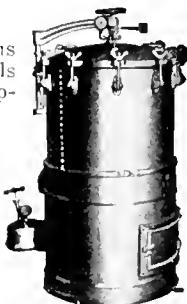
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Child Hygiene Lectures in China

Candy making demonstrations or a demonstration of how to bathe and properly care for the baby may either be the feature of the day at the “open house” of the Young Women’s Christian Association in Foochow, China. If the latter, it is given by a nurse from a near by hospital who brings a life-size, properly dressed celluloid baby doll with her as an aid to her lecture. Whichever it is, the Chinese women listen eagerly and come again the next week if possible.

SEASONS AND SICKNESS

Seasonal variation in diseases was discussed in the September issue of MODERN MEDICINE by Chas V. Craster, M.D., as related to the epidemic of the more common contagious diseases in Newark, N. J., with the conclusion that it was an important factor in the cases studied. In the October issue of the *American Journal of Public Health* Dr. W. A. Evans tabulates the bacterial maladies in Chicago since 1871, studying them from another angle, that of a comparison of increasing or decreasing mortality. His conclusions are significant, and he declares that all factors tending to an increased resistance should be searched out in order to discover and foster all the principles controlling immunity.

A BAN ON CORSETS AND HIGH HEELS

Corsets and high heel shoes are doomed. The edict went forth from the International Conference of Women Physicians which was held at New York. There is no place for either in the latest scheme for improving the modern woman physically. Representatives of a number of foreign countries participated in the heated discussion which preceded the vote. The abolition of the corset carries with it the skirt band, for everything must hang from the shoulders. A tight skirt band on an uncorseted figure can do more harm than a corset. The proper shoe, the physicians are agreed, must have a flexible arch, low flat heel, and a straight inner line with a broad toe. Even bedroom slipper heels should be abolished. A dress display included one which might be made to serve for both marketing and for the opera, the changes being effected by means of different colored under and over tunics.

FOOT BINDING NOT OBSOLETE

“No other country except China has set itself up seriously as a rival to America in the business of mutilating women’s feet, and China has reformed,” says a correspondent in the *New York Times* in reporting efforts of the Young Women’s Christian Association to promote the use of a shoe which fits the normal foot. By the use of the high heeled, narrow toed shoes so commonly worn by American women, a strain is put upon the spine, the internal organs are drawn out of place, and the foot is tilted to the angle of a horse’s hoof. The type of shoe habitually worn by American women has been the object of the amazed interest of the foreign physicians attending the International Conference of Women Physicians in New York. Physical examination before the Congress demonstrated the inability of eliciting even a wiggle from toes deformed by such shoes. The association has adopted a standard shoe with straight line on the inside of the foot and a flexible sole, so that the toes that were intended to grip the ground when walking may have a chance to perform their natural function. They have listed the retail shoe stores all over the country and in Canada where the approved shoes can be bought. It remains to induce women to wear them.



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CONFERENCE OF ILLINOIS CHARITIES

An explanation of the Red Cross peace time program was given by Walter F. Davidson, director of Civilian Relief for the Red Cross, of Chicago, before State Conference of Charities and Corrections held at Decatur, Ill., during the last week of October.

BOOKS RECEIVED

[Comment on current medical and health literature will be found on page 649, in the department, "Books of the Month."]

DYNAMIC EVOLUTION. A Study of the Causes of Evolution and Degeneracy. By Casper L. Redfield. Cloth, 8vo, pp. 210, \$1.50. G. P. Putnam's Sons, New York, 1914.

THOUGHTS OF A PSYCHIATRIST ON THE WAR AND AFTER. By William A. White, M.D., Supt. of St. Elizabeth's Hospital, Washington, D.C.; Professor of Nervous and Mental Diseases, Georgetown University, Professor of Nervous and Mental Diseases, George Washington University. Cloth, 8vo, pp. 137, \$1.75. Paul B. Hoeber, New York, 1919.

THE ANATOMY OF THE PERIPHERAL NERVES. By A. Melville Paterson, M.D., F.R.C.S., Lieut.-Col. R.A. M.C., Assistant Inspector of Special Military Surgical Hospitals, Professor of Anatomy in the University of Liverpool, Examiner in Anatomy at the Royal College of Surgeons, of England, etc. Cloth, 8vo, pp. 165, illustrated. Oxford Medical Publications, New York City.

DISEASES OF THE STOMACH, INTESTINES AND PANCREAS. By Robert Coleman Kemp, M.D., professor of gastro-intestinal diseases at the Fordham University Medical School; gastro-enterologist at the Fordham University Clinic; consulting physician and gastro-enterologist to the Manhattan State Hospital. Cloth, 8vo, third edition, revised, pp. 1,096, illustrated, \$7. W. B. Saunders Company, Philadelphia, 1917.

THE ITINERARY OF A BREAKFAST. A Popular Account of the Travels of a Breakfast Through the Food Tube and of the Ten Gates and Several Stations Through Which it Passes, also of the Obstacles Which it Sometimes Meets. By J. H. Kellogg, M.D., medical director of the Battle Creek Sanitarium. Cloth, 8vo, pp. 210, illustrated \$1.60. Funk & Wagnalls Co., New York, 1919.

VENEREAL DISEASES. A Practical Handbook for Students. By C. H. Browning, M.D., D.P.H., director of the Bland-Sutton Institute of Pathology in Middlesex Hospital; and David Watson, M.B., C.M., lecturer on venereal diseases, Glasgow University; surgeon in charge of the venereal department, Glasgow Royal Infirmary, and of the Lock Hospital, Glasgow. With an introduction by Sir John Bland-Sutton, F.R.C.S. Cloth, 12mo., pp. 336, illustrated. Oxford University Press, London, 1919.

PERSONAL HYGIENE AND HOME NURSING. A Practical Text for Girls and Women for Home and School Use. By Louisa C. Lippitt, R.N., assistant professor of corrective exercises, University of Wisconsin; and A. Head, reconstruction aide in physiotherapy, Medical Department, United States Army, formerly instructor National School of Domestic Arts and Sciences, and instructor in the training schools of Garfield Memorial, Providence, Columbia, and other hospitals. Cloth, 12mo., pp. 256, illustrated. World Book Co., Yonkers-on-Hudson, New York, 1919.

INFECTIOIN, IMMUNITY AND SPECIFIC THERAPY. With Special Reference to Immunologic Technic. By John A. Kolmer, M.D., Dr.P.H., M.Sc., assistant professor of experimental pathology, University of Pennsylvania; professor of pathology, University of Pennsylvania; professor of pathology and bacteriology, Philadelphia Polyclinic, and Pathologist to Philadelphia Hospital for Contagious Diseases; with an introduction by Allen J. Smith, M.D., Sc.D., LL.D., professor of pathology, University of Pennsylvania. Cloth, 8vo, second edition, revised, pp. 978, illustrated, \$7.50. W. B. Saunders Company, Philadelphia, 1917.

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1541 Diamond St., Philadelphia, Pa.

An appropriation of \$23,000 for the budget of the health center has been asked of the Oakland, Cal., Board of Supervisors. Of this amount, \$9,000 will be used for clinic purposes, \$8,000 for the study and prevention of tuberculosis, and the remainder for the salaries of the secretary and director and for running expenses. Bids have been asked for the reconstruction of the old county hospital at San Leandro.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

Of *Modern Medicine*, published monthly at Chicago, Ill., for October 1, 1919.
State of Illinois {ss.
County of Cook }ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared H. T. McClure, who, having been duly sworn according to law, deposes and says that he is the Secretary of the Modern Hospital Publishing Co., Inc., and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers are:

Publisher: The Modern Hospital Publishing Co., Inc., Chicago, Ill.

Editors: Alexander Lambert, M. D., New York, N. Y.
S. S. Goldwater, M. D., New York, N. Y.
Otto P. Geier, M. D., Cincinnati, O.
C-E. A. Winslow, Dr. P. H., New Haven, Conn.
Walter H. Hamburger, M. D., Chicago, Ill.

Managing Editor: John A. Lapp, LL.D., Chicago, Ill.
Business Manager: Dr. O. F. Ball, Chicago, Ill.

2. That the owners are: (Give names and addresses of individual owners, or if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

O. F. Ball, Chicago, Ill.; Frank M. Bailey, Chicago, Ill.; A. F. Nagle, Jr., New York, N. Y.; R. S. Gronemann, Chicago, Ill.; I. V. Barth, St. Louis, Mo.; Mrs. L. M. Ball, St. Louis, Mo.; H. T. McClure, Chicago, Ill.; C. S. Mott, Chicago, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) There are no bondholders, mortgagees, or other security holders.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

H. T. McCLURE,
Secretary.

Sworn to and subscribed before me this 30th day of September, 1919.

Ora L. Peterson.

[SEAL] (My commission expires Nov. 12, 1919.)

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians
& for Others Interested in Administrative, Industrial
& Social Health Problems

Editors ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., and JOHN A. LAPP, LL.D.

Managing Editor JOHN A. LAPP

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DECEMBER, 1919

Number 8

NOTES AND COMMENT

THE AMERICAN PUBLIC HEALTH ASSOCIATION

THE presidential address of Lee K. Frankel, retiring president of the American Public Health Association, delivered at the opening of the forty-seventh annual meeting of that organization held at New Orleans, is an index to the thought, affairs, and hopes of that splendid body of men who represent the public everywhere in the capacities of health officers, medical directors, or leaders of health organizations.

The three tendencies of the times in the field of American Public Health are defined by Doctor Frankel. These he names as the active entrance of the American Red Cross into the public health campaign, the movement for compulsory sickness insurance, and a demand for coordination and extension of Federal health activities.

His comment upon the work of the Red Cross places emphasis upon the great possibilities of the movement for public health nursing service and the health center movement. Hand in hand with these enterprises, there must be promoted a progressive spirit of cooperation between all the national, local, and legally constituted health authorities whose work leads toward the common goal. The first of these functions clearly belongs to the regularly constituted health authorities and there seems some tendency for the second to pass into their hands in connection with certain diseases. He therefore recommended that the interrelationships between these sanitary and medical functions and the direct economic problem of sickness insurance should be studied by a special standing committee of the Association.

Dr. C.-E. A. Winslow, contributing editor of

MODERN MEDICINE, has given an account of the meeting held at New Orleans which will be found on page 663. The substance of the thought and discussions in the sectional meetings of the Association offers genuine inspiration to the American medical profession and allied professions.

NATIONAL PHYSICAL EDUCATION SERVICE

THE Playground and Recreation Association of America, at the request of the National Committee on Physical Education, has established a national physical education service, with the aim of disseminating, through the various states, the best thought of leaders in this field; of stimulating the necessary state legislation for compulsory physical education; and of rendering every possible assistance to the states in planning and securing such legislation. Seven states have already enacted such laws within the last two years, New York, New Jersey, Nevada, Rhode Island, California, Maryland, and Delaware, and in many other states the matter has been brought up before the legislatures.

Is America as a whole going to answer the call of this progressive movement? Are our rural districts going to realize the necessity of physical education with its broad program of instruction in health principles, periodic physical examinations, and direction in vigorous recreational activities? Are we as a Nation going to keep step with England and France,—for they both are reorganizing their educational systems to include physical training and athletics? Only as we enter into the movement for national physical fitness

concretely and as a people, shall we be able to enter with full stride upon the new era of economic and spiritual development now before us.

PLASMODIUM AND ANOPHELINE AN UNHOLY ALLIANCE

THIE decadence of Hellenic civilization and the fall of the Roman Empire were caused, not by the Macedonian conquest or the irruption of barbaric hordes, but by the mosquito. This is the conclusion drawn by Jones¹ and others who have subjected both cases to scrupulous investigation, and it is a conclusion from which there appears to be no escape.

The Macedonian conquest would have been inadequate to destroy the Greek civilization, and the irruption of the barbarians into the Roman Empire would not have occurred if the ground had not been prepared, in each case, by a sapping of the resistance of the people by generations of malarial infection.

For an examination of the data relating to the source of the original infection and to the gradual spreading of malaria, our readers are referred to the fascinating work named in the footnote. Our task is to draw practical lessons of present application. The most obvious of these lessons has already been learned in part: that is, that it behooves us to arrest the progress of the identical enemy which caused the downfall of Rome, and to oust him from his strongholds. We must undo, in short, a part of the work of destruction and restore prosperity to great areas of fertile country depopulated by the alliance of anopheline and plasmodium.

The lesson has been most thoroughly taken to heart in tropical and sub-tropical regions, where Caucasians from non-malarial countries have come into contact with the destructive and degenerative effect of malarial infection. Next in order are such districts as the lower Mississippi Valley, where the exigencies of increased production and the growing recognition of the economic losses entailed by neglect of malaria have combined with the general awakening of the public conscience in health matters to set in motion, first experimentation with, and then wide application of measures for malaria control.

The demonstrated efficiency of these measures and the economic gains resulting from their application render certain their generalization at an early date throughout the malarial districts of this country.

The tropical and sub-tropical countries and the

United States may, therefore, be safely considered as well on their way to freedom from malaria, with more or less speed; but the countries referred to in the commencement of this article, regions formerly the home of the brilliant Greek and the solid Roman civilizations, are equally capable of regeneration. In Italy this work has already been seriously commenced, while in Greece proper much has been done. It may therefore be assumed that the swamps of Macedonia, due largely to deforestation, will be taken in hand.

In Asia Minor great valleys lie in the grip of paludism. There is here an opportunity for a great work, at once philanthropic and profitable. Nor is the task a difficult one. Much of the country has now a sufficient population for cultivation on American principles, that is, looking to increase of productivity per man rather than per acre. This population is at present obliged to live in villages, in sites selected for their elevation and, therefore, far from the best land, because during the malarial season it is impracticable to spend the night in the low fertile valleys. Moreover, the improvement of conditions would attract desirable peasants from other less productive but now healthier regions. No better contribution could be made to the vexed questions of the near East than the amelioration of the cultivable area of Asia Minor.

CANCER CONTROL

THE wide publicity accorded by the lay press to Dr. W. J. Mayo's address to the American College of Surgeons will inevitably quicken the general interest in cancer control. In these circumstances it is appropriate to review the history and achievements of the American Society for the Control of Cancer.

This Society was established, rather more than six years ago, in consequence of action taken by the American Gynecological Society. The members of the latter body had been impressed by the fact that an overwhelming majority of women with cancer of the pelvic organs presented themselves for treatment only when the disease was so advanced that, at most, palliative measures were available. A committee appointed to consider how this evil of delay might be combatted, reported in 1913, at the triennial Congress of American Physicians and Surgeons, in favor of setting up of one organization for an educational campaign against cancer. Five laymen guaranteed the expenses for one year, making it a condition precedent that the undertaking should be approved by the medical profession.

The Society was formally founded in New York

¹. Jones, W. H. S.: Malaria a Neglected Factor in the History of Greece and Rome.

in May, 1913, at a meeting of delegates appointed by the principal medical societies of the United States associated with a number of lay citizens. Its functions were stated to be: "to disseminate knowledge concerning the symptoms, diagnosis, treatment, and prevention of cancer; to investigate the conditions under which cancer is found; and to compile statistics in regard thereto."

Mr. Curtis Lakeman was appointed executive secretary; the success of the movement and the prestige now enjoyed by the Society, both with the profession and with the laity, are largely due to his initiative and ability.

While the program of the Society's campaign includes the investigation of "the conditions under which cancer is found," its functions do not overlap those of the older American Association for Cancer Research, many of whose members are also active in the educational work of the younger body.

The working methods of the Society are those of an active liaison agency and of a clearing house. It cooperates with all forces and agencies, local and general, lay and professional, political and administrative, which can assist or be assisted in the education of the public and in the collection of reliable statistical data. Among the collaborators which deserve especial mention are the American Medical Association, acting through its Council of Health and Public Instruction, and the great insurance companies.

As an example of the Society's methods may be instanced the fifty-six-page pamphlet, "What We Know About Cancer," addressed to the medical profession, prepared by a special committee of the Society and published in cooperation with the Council of Health and Public Instruction. Six thousand copies of this pamphlet have been bought by the Massachusetts State Board of Health for distribution. The Society has published, or assisted in the preparation of a number of other pamphlets, leaflets, and posters addressed to the general public. It had, for instance, a share in the preparation of the leaflet, "Cancer; Facts Which Every Adult Should Know," issued by the United States Public Health Service, of which 250,000 will be distributed before the end of the year.

At a time when cancer seems on the increase and when the expectation of life after forty is diminishing, the beneficent work of this Society is of cardinal importance. We must preserve our adults in their ripe years, and the prevention of avoidable cancer is one of the most obvious means. It is to be hoped that the Society, which is on the point of losing its able first executive secretary, Mr. Lakeman, who is joining the League of Na-

tional Red Cross Societies at Geneva, will continue to receive the moral and financial support and assistance not only of the medical profession but of all who are interested in the Nation's health.

THE BRITISH MINISTRY OF HEALTH

BEFORE the passage of the Ministry of Health Act public health matters were cared for, in England and Wales, by twenty-one central and more than two thousand local authorities. The activities of the former group have now been consolidated under the Ministry of Health, leaving the reorganization of local public health work to later legislation. This is in accordance with British parliamentary tradition which is opposed to the sudden introduction of sweeping reforms. In the same spirit, no sensible change has been made in the substantive laws relative to public health.

Under the new law the Local Government Board and the National Insurance Commissioners disappear. As some of the functions of the former were not directly related to public health, powers have been provided for the shedding of such foreign matters when experience has shown how they may best be allotted elsewhere.

The urge toward the creation of the new ministry came from many quarters. The appreciation by the people at large of the importance of preventive medicine, brought home to them by war experience, was of great effectiveness in providing power. But the directive force came from the medical profession which, erstwhile a bitter opponent of health insurance, is now so convinced of its value to the nation and to itself that it is anxious to secure the widest applications of the principles it embodies. Fortunately, the profession was unusually well represented in the present House of Commons, notably by Lister's assistant and successor, Watson Cheyne, and by Christopher Addison, the minister in charge of this bill.

While the details of the law interest us but little, dealing as they do with a situation and a state of mind peculiarly British, there are some points in the history of the Act and in the general principles involved which have a bearing on our own problems.

Practically every organized body of the medical profession in Great Britain was consulted,—and there surely is a plenty of them,—academic, license-giving, governing, and political. Most of them occupied themselves seriously with the problem. This was particularly the case with the British Medical Association, the Royal Colleges, and the bodies that naturally rally round them,

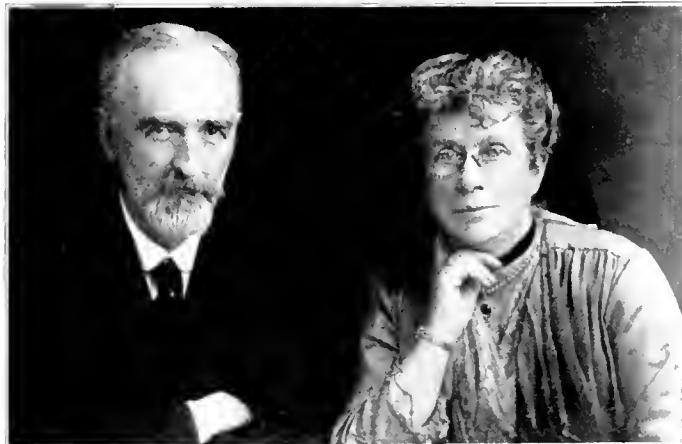
and the General Medical Council. The result was that, when the bill came to the House, it passed through the committee stages in record time and reached the statute book with surprising and gratifying speed. Such modifications of the original draft as were made in the bill were introduced to bring it more into line with the views of the medical profession as expressed by their representative bodies.

Here was a law of first importance to the medical profession and it was the official opinion of that profession which weighed with the legislature. This goes far towards consecrating a principle expressed by one of the representative bodies in the following resolution:

"That any system of national health legislation which does not secure for medical practitioners similar freedom from lay control to that enjoyed by the clergy of the Established Church, by the legal professions, and by the dual profession of arms, must be injurious to the status, prestige, and general well being of the medical profession and hurtful to the best interests of scientific medicine."

At all times there has been complaint that government departments have taken far-reaching decisions on highly technical matters without due consultation of competent advisers, or with an injudicious choice of advisers. This is an evil by no means peculiar to the United Kingdom. Protests from the professions have been made from time to time without satisfactory results. But some of the stupendous blunders of the war having been clearly laid to the charge of this practice; the public conscience has been awakened and the result is seen in one of the most important

FAVORS NATIONAL HEALTH PROGRAM



Sir Arthur and Lady Newsholme. Sir Arthur has given his indorsement of progressive public health measures.

THE national health program which the Red Cross is seeking to inaugurate as an important feature in its peace time activities has the indorsement of Sir Arthur Newsholme, English peer and physician. Lord Newsholme is examiner in state medicine of the University of London and Oxford and a member of the Interdepartment Committee of British Hospitals and his influence will be a powerful factor back of the movement. He says: "Advances in public health in many directions can only be secured by continued and extended medical research in public health, and public health, therefore, has a direct and immediate interest in promoting and subsidizing such research." The primary function of public health, he says, is concerned with environmental measures calculated to prevent disease, whether pre-natal or post-natal.

council. (5) The councils shall have power of initiation, that is, they may address advice to the Minister, not only on matters submitted to them by him, but also *proprio motu*. It shall be obligatory on the Minister to consider such advice. (6) Triennial election is provided for.

The necessity for this effective advisory organization was so strongly felt that much of the discussion in the House turned on means for preventing the law setting it up becoming a dead letter. In the first place, to this end, even the traditional working and rules relating to Orders in Council were modified; secondly, it was proposed that the recommendations of the Councils should be presented to Parliament. The latter proposal was reluctantly withdrawn only on the urgent representations of Addison, who pointed out that the responsibility of the Minister to Parliament would suffice to insure effective action.

In this compromise we see, perhaps, a happy mean between that "government by experts" which those of us who know best most distrust, and that other condition of government by ignorance, prejudice, and accidental interests.

provisions of the new Act. It is laid down that consultative, elective councils shall be established to advise the Minister of Health, and, so that this provision shall be effective, the following rules are enacted: (1) The councils shall be composed without discrimination as to sex of persons of practical experience in the matters on which they are to advise the minister. (2) The members of the councils shall have direct access to the minister. (3) The meetings shall be held regularly. (4) Power is given to appoint sub-committees and to coopt, to these, persons from outside the

THE HISTORICAL DEVELOPMENT OF PUBLIC HEALTH WORK IN ENGLAND

BY ARTHUR NEWSHOLME, M.D., K.C.B., LATE PRINCIPAL MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD,
ENGLAND*

THE subject is too large to be treated adequately in the course of an evening's address; and to bring it within manageable compass it is necessary for me to select my material rigidly and, as far as I can, to present this material in such a manner as will bring into relief its salient and most instructive features.

The evolution of public health in England proceeded by experimental steps, some mistaken and then retraced, others mistaken and not retraced, but steps oftenest in the direction of a complete service, which is the goal of our work.

The evolution has been a gradual growth arising out of realized needs, rather than a logical development based on general principles; and as politicians and legislators seldom take a wide outlook, or consider a specific proposal in relation to what is already being done, and to what is the desired goal, the English experience is especially instructive.

Congestion Increases Health Problems

Public health work became an urgent necessity when men began to huddle in towns; and with the industrial revolution of the eighteenth and early nineteenth centuries the need for remedial action became acute. It is hard to realize that in the days of our grandfathers, the home was in most instances the unit of industry; and that in the eighteenth century communications between districts and towns were not more advanced than those of the ancient Egyptians. When, however, vast urban aggregations of population multiplied, traveling facilities rapidly increased, and the results of crowding, of contaminated water supplies, of intensive and widespread infection, were seen in devastating endemic and epidemic diseases. Poverty, squalor, dirt, and their consequences, were rampant in the towns, in which underpaid work-people were exploited by masters,

Public opinion is motive power. Good work cannot for any prolonged period go beyond what the public demands; and the work of officials is one of constant education of their masters and of the public.

Adequate and efficient health administration hinges upon the perennial problem of efficient government. The inveterate tendency in the past has been to create a new authority when any new work was inaugurated.

The first principles of good administration require that when a special function is to be undertaken, it shall be undertaken by one governing body for the whole community needing the service.

whose self-centered outlook had some share of justification in the political economy doctrines of the time which regarded any interference with "freedom of contract" as useless or even pernicious.

What is public health work? It is best defined by stating its object, which is to secure the maximum attainable health of every member of the community, so far as this can be secured by the authorities, local,

state, or federal, concerned in any part of government, acting in cooperation with all voluntary agencies whose work conduces to the same end. The connotation of public health becomes wider year by year. It embraces physiological as well as pathological life; being as much concerned with improving the standard of health of each person as with the prevention and cure of disease. Hence the importance of the "concentration on the mother and her child" (John Burns), to secure for them by all practicable means the conditions of complete health, which during the last twelve years has been a vital part of our public health work, and which is now being made to include not only all hygienic and medical help that may be needed, but also such domestic aid as may enable the mother to bring her children into the world and to rear them under advantageous conditions.

Principles of Constructive Health Work

Public health embraces some eugenic elements, and may comprise more when eugenists have accumulated adequate non-fallacious and unbiased evidence on which to base valid conclusions. Already partial steps are being taken to secure the segregation and prevent the propagation of the feeble-minded and the insane; and in sorting out true heredity from congenital infection action is

*An Address at the Forty-seventh Annual Meeting of the American Public Health Association, New Orleans, October 27, 1919.

being taken to avoid congenital syphilis and to prevent the large number of still-births due to this race poison.

Public health in the main is concerned primarily with the environmental measures calculated to prevent the attack of man by disease, whether pre-natal or post-natal. These measures may be industrial, as in the prevention of accidents, of dust, of noxious vapours; or sanitary, as in the control of water supplies, food, or milk, and in the removal of organic filth; or may be the application of preventive medicine, against infectious and non-infectious diseases; or therapeutic, consisting of the prompt and adequate treatment of all illnesses and the curtailment of the incompetence due to them; or educational, consisting, first in importance, in the training of medical practitioners, of public health officials, and nurses; and, next, in the education of the general public and especially of the children in our schools, in the science and practice of public health.

Advances in public health in many directions can only be secured by continued and extended medical research, and public health, therefore, has a direct and immediate interest in promoting and subsidizing such research.

These being the objects of public health, how far have we travelled toward securing the end in view? I do not propose to myself the pleasant task of showing to what extent the general death rate has been lowered, infant and child mortality greatly reduced, the duration of life extended, how typhus and smallpox have been almost eradicated, typhoid fever made a disappearing disease, and tuberculosis has become the cause of only half its former death rate. When inclined to indulge in such pleasant considerations, I recall the statement I have made elsewhere that one-half of the mortality and disablement still occurring at ages below seventy can be obviated by the application of medical knowledge already within our possession.

Let me attempt the more difficult task of outlining the history of forms of administrative control of disease since 1834.

Reform in the Control of Poverty

Poverty and disease work in a vicious circle in which cause and effect often change places; but it is certain that disease is one of the most fertile causes of poverty, using the word poverty in the sense of privation of one or other essential of physical well being.

For this reason, and because the half starved form a constant social danger, poor-law administration long antedated public health administra-

tion. There is not time to follow the course of earlier poor-law administration, with its many and grievous abuses. The Poor-Law Amendment Act of 1834, gave the Central Government control over the systems of local relief, secured the combination of parishes into unions for poor-law relief¹; and forbade outdoor relief to able-bodied men. The creation of an organ of central control has led to the subsequent course of aid to paupers being determined in the main in London, action of poor-law guardians being subject to supervision by government inspectors, and to endorsement by the Central Authority. At first, medical assistance under the reformed Poor Law was made as deterrent as non-medical relief; and although there has been much improvement, chiefly on the institutional side, medical treatment under the Poor Law has to some extent retained this deterrent element, and it has, excepting in the poor-law infirmaries of large cities, remained generally disliked by the people concerned.

First Central Poor-Law Authority

The first Central Poor-Law Authority was a Commission having no representative in Parliament. In 1847 it was replaced by a Board, the president of which was a member of Parliament and of the Government. Here once for all Parliament declared its intention to maintain direct control of central official government, and in this and in all other departments has done so. If democracy is to be real,—and we have no sound, practicable alternative to it,—evidently the representatives of the people must be masters of the administration; and English policy has never wavered on this point. After many years' experience of public life in England, I have no hesitation in saying that this principle is sound; that it insures progress which, although slow, is less liable to relapse than administration under autonomous expert commissions, whether centrally or locally; and that any lack of progress that has been experienced in central government has been as much the result of inactivity and of lack of sympathy with social reform on the part of the permanent officials of government departments who have had access to their parliamentary chief, as of the inertia of politicians or their obstruction to reform.

Dissatisfaction with Poor-Law administration has steadily increased in the years since 1834, as the problem of the able-bodied pauper has diminished and the Poor Law has been concerned more and more with the sick and infirm, the aged, and children. These at the present time form some

¹ The importance of this is seen in the fact that there are in England and Wales 14,614 parishes, and only 646 unions for the relief of the poor.

98 per cent of the total population relieved. The fundamental principles of the Poor-Law were rightly attacked. It did not comprise elements tending to build up disabled families, or to prevent families from falling hopelessly and permanently into destitution. The law was administered almost entirely with a view to relief; practically not at all as a curative agency. In medical language, symptomatic and not rational causal treatment was the rule.

In medical relief, poor-law administration has been a constant struggle between increasingly humane treatment and the conception that the pauper's position must remain inferior to that of the non-pauper; an important principle when applied to the able bodied adult who has drifted into willing dependence; absolutely mischievous when applied to sick persons, and to dependent women and children.

The general dissatisfaction with poor-law administration led to the appointment of a Royal Commission on the Poor-Laws which, after several years' deliberation, reported in 1909 a majority and minority report. Both these reports recommended the abolition of boards of guardians, and the transfer of their duties to the 144 largest public health authorities in the county (County Councils, 44; and the Councils of county boroughs, 82), and the abolition of the general workhouse. The majority report would have continued the Poor-Law Guardians as a Committee of the new Authority; the minority report proposed to distribute the duties of the guardians to different committees of the Public Health Authority; thus medical treatment to the Public Health Committee, the care of lunacy and the feeble-minded to the Asylum Committee; care of children to the Education Committee; vagrants, etc., to the Police Committee, a special committee concerning itself with all questions of monetary assistance.

De-Centralizing Poor-Law Work

A compromise between these two schemes has recently been arranged, and when the new Ministry of Health, which will combine public health, poor-law, insurance, and educational medical work in one department, has found time to do urgently needed work, the above indicated reform may be hoped for, along with the equally needed reform of local public health administration, and the abolition of a large number of the smaller and less efficient sanitary authorities. With these reforms will come much needed de-centralization of poor-law work. Good work in all respects cannot be secured if the Central Authority concerns itself, as at present, in minutiae of local

administration, and has no time to devote itself to the larger problems, and to the detailed task of bringing indifferent, chiefly smaller authorities, up to the standard of efficient local authorities. A large portion of the expense of local poor-law administration is borne by the central exchequer, and this money if properly applied will give the necessary leverage for reform, while leaving progressive Authorities, and especially the Authorities of large towns, freedom to experiment and advance.

Reform in Industry

The industrial revolution meant the subjection of large masses of working class families to evil conditions of housing and work in crowded and insanitary dwellings and factories. The public conscience first rebelled in regard to boarded out and apprenticed pauper children; and the first Factory Act in 1802 concerned itself with them; and with this Act emerged the germ of machinery for securing compliance with the law, magistrates and clergymen being appointed as inspectors under the Act.

The Act was largely futile; but it meant the beginning of the gradual breaking down of *laissez faire* doctrines; and there followed a more widely operative Factory Act in 1833, restricting hours of labor of children, and initiating professional inspectors controlled and paid by the Government. In 1842 the underground employment of women in mines was forbidden; and there have followed at intervals since then numerous factory and allied acts, restricting the duration and conditions of work of women and children, improving rules as to sanitation, insuring systematic inspection by government inspectors, and constituting a far reaching system of supervision and control.

The inspectors, on whom falls the burden of ensuring compliance with the Factory Laws and regulations made under them, are controlled by the department of the central government known as the Home Office; their work has been well done, and the conditions of factory and workshop life have greatly improved. Some portion of the sanitary supervision of these work-places falls on the local Sanitary Authority; but in the main the system is one of absolutely centralized government control. This secures almost complete absence of improper influence of interested local persons, whether masters or workmen; but it is arguable that this system should be replaced by a localized system, the inspectors being officers of the 144 larger authorities. These local officers could be placed in direct touch with the Home Office or the Ministry of Health and with the cen-

tral staff of inspectors having expert knowledge in the different branches of industrial work.

Public health reform was a direct consequence of the Poor-Law Amendment Act, 1834. Anxious to diminish the enormous expense of the existing Poor Law, and realizing that a large share of this sickness was due to fever and other illnesses, surveys and inquiries were set on foot by the commissioners administering this Act, and the reports which followed revealed a state of things urgently calling for sanitary reform, in the interest of national economy as well as of health. "An Act for Promoting the Public Health" was passed in August, 1848, which created a General Board of Health consisting of four members and a secretary. These Commissioners, among whom was Edwin Chadwick, former Secretary of the Poor Law Board, initiated a system of procedure which was largely on the lines of poor-law action, and which involved constant pin-pricking by the Central Authority of the grossly indifferent local authorities. The commissioners were more zealous than discreet; and after six years they were no longer tolerated. At that time centralization was as much a bogie as socialism has become in more recent years. Parliament and the localities represented by its members doubtless feared the reforming activity of Mr. Chadwick and his colleagues, though they sheltered themselves behind their exaggerated fears of bureaucracy and centralization.

A new board replaced the old, parliamentary in character, its president being a member of the Government. This repeated, so far as concerns Parliamentary headship, the story of the Poor-Law Board, and established once more the theory of the administrative control of the representatives of the people. Nor, although the change meant for the time serious slackening in sanitary reform, can objection be taken to this. In a democratic government the elected representatives of the people must take first place; and it is the rôle of officials to educate them in the direction of needed reforms. Reforms which do not carry public opinion are not likely to be permanently successful; and whether in administration or in legislation attempts to sidetrack or ignore this fact are not likely to be permanently effective.

When the Local Government Board was formed in 1870, a second opportunity was lost of developing Public Health Administration on lines which we now know to be the best adapted for a complete service of preventive medicine. The first lost opportunity was when sanitary authorities completely separate from poor-law authorities, were created for administering the sanitary laws. Probably this arose from Chadwick's despair of

getting effective sanitary reform from poor-law guardians; but the creation of separate authorities was scarcely consistent with the fact recognized by him that pauperism is largely, if not predominantly a question of sickness; and the less recognized fact that its treatment forms an essential part of prevention. It was recognized that the care of the sick was largely idle until the unnecessary causes of disease had been cut off, but not that the adequate treatment of sickness is an important means of preventing it or of curtailing it. Rumsey², in 1856, stated the unrealized possibilities of the poor-law medical officer's domiciliary attendance on paupers in the following words:

There are much higher functions of a preventive nature than those of a mere "public informer" which the district medical officer ought to perform. He should become the sanitary adviser of the poor in their dwellings . . . he (should) be in a peculiar sense, the missionary of health in his own parish or district,—instructing the working classes in personal and domestic hygiene,—and practically proving to the helpless and debased, the disheartened and disaffected, that the State cares for them, a fact of which, until of late, they have seen but little evidence.

In the result the *ad hoc* poor-law authority did not absorb into it the newly created municipal and urban and rural sanitary administration, but continued on its separate path.

Simon, in 1868, had urged the inadvisability of continuance of *ad hoc* authorities, and had urged that, at least, sanitary should be made coterminous in area of administration with poor-law districts. His advice was not adopted, and there followed years in which sanitary authorities were allowed to subdivide areas, until the total number became 1,807 instead of 635, the number of poor-law authorities; and in which they concerned themselves chiefly with nuisances and water supplies and with inadequate provision for the prevention and treatment of infectious diseases. With the creation of county councils and the more complete autonomy of the councils of county boroughs, the large centers of population developed and improved their sanitary administration more rapidly; and it became practicable to undertake every division of sanitary work on an efficient scale. Although much remains to be done, it can be claimed that in our larger towns, containing more than half of the total population of the country, the public health work in nearly all its branches is of a high order. It would have been still more efficient had the poor-law guardians been merged in the Town Council, and the relationship between the school medical service and the other branches of the public health service closer than has been the case.

² Rumsey: Essays in State Medicine, 1856, pp. 190, 277, 282.

What is now needed is that the defects just named should be made good; that more complete autonomy should be given to the authorities which come up to a required standard, and that especially they should have greater freedom in developing local possibilities of improved administration. Central grants in aid of local sanitary administration are steadily increasing. Already the Government pays one-half of local expenditure on a large program of maternity and child welfare work, one-half of the expense of local tuberculosis work, and three-fourths of the expense of local work for the diagnosis and treatment of venereal diseases, and for propaganda work concerning these. These grants should be the means of greatly increasing good local administration, but if,—this is improbable,—they curtail local experimentation and extension, and bring local public health administration into anything approaching the subservience of local poor-law administration, the value of these subventions will be doubtful.

The national system of compulsory elementary education inaugurated in 1870 has had valuable indirect influence in promoting the public health. Apart from the beneficent effect of education, the steadily increasing pressure on children to come to school in a cleanly condition, the stimulus of emulation in tidiness and cleanliness, have done much to improve the home conditions of the people. After the South African war much attention was drawn to the large number of recruits rejected owing to physical disabilities; and an inter-departmental committee reported *inter alia* in favor of a system of medical inspection of pupils in elementary schools, which had often been urged by hygienists. Observations made in Glasgow and Edinburgh by Leslie Mackenzie did much to draw attention to the physical defects in Scottish school children. In 1907 the Board of Education acquired power to make provision through the local education authorities for the medical inspection and treatment of school children. At first little more than inspection of pupils was undertaken, a large number of defects of sight, hearing, parasitic conditions, as well as malnutrition and actual disease being discovered. Gradually some items of treatment were undertaken at school clinics, or at hospitals or centers subsidized by the education authorities; though the amount of treatment is still small compared to the defects discovered and not otherwise treated.

But there now existed in every locality three authorities concerned in the treatment of disease:

1. Poor-law guardians, treating all forms of illness in paupers, at home and in institutions.

2. Public health authorities, undertaking preventive measures against disease, and treating in institutions; and more recently providing nurses at home for certain conditions.

3. Local education authorities, concerned in treating certain ailments in school children.

Centrally two government departments were supervising this work, and subsidizing it to some extent from government funds; and poor-law medical work and public health medical work were supervised by two divisions of the Local Government Board acting in almost complete isolation. More recently Parliament has permitted the Board of Education to give grants in aid of schools for mothers, and allied institutions for the care of children under school age; for which institutions, substantially, the Local Government Board in other instances was giving grants.

The separation of educational medical work from public health medical work was contrary to the first principles of sound administration; although it is possible that, owing to the inertia in some public health circles, this separation at first favored rapid advance in school hygiene; just as the early development of public health apart from poor-law administration was probably more rapid than could have been expected from centrally ridden local authorities, concerned chiefly in keeping down the poor rates.

The Ad Hoc Vice

But in both instances there was an offense against the first principles of good administration, which require that when a special function is to be undertaken it shall be undertaken by one governing body for the whole community needing the service, and not for different sections of the community by several governing bodies. Medical treatment is needed for school children and for the poor generally. Why separate this into two administrations? Hospitals are required for paupers with tuberculosis, and for non-paupers with tuberculosis. Why have two authorities for this work? The separate existence of Education and Poor-Law Authorities qua medical attendance on those needing it erred, not only in this fundamental respect, but also because neither of these authorities has the preventive facilities and powers possessed by Public Health Authorities, who were also partially engaged in the treatment of disease.

The inveterate tendency in the past has been to create a new authority when any new work was inaugurated, this authority then fulfilling all purposes for a special portion of the community and thus necessarily reduplicating the staffs of

other departments of local or central government. The crowning instance of this recurring instance of legislative myopia is seen in the case of the National Insurance Act, under which has been provided an imperfect and unsatisfactory domiciliary medical service for one-third of the entire population of Great Britain, when by combining and extending the medical forces of existing departments of the state, a satisfactory service for all needing it would have been secured. The axiom that "the object of community service is to do away with group competitions and bring in its place group cooperation or team work," (Goodnow), is especially applicable to all public health and medical work; and its spirit is infringed by the existence of separate, sometimes competing, occasionally conflicting, services under separate local and central control.

Principles of Local Government

The preceding considerations bear on the perennial problem of efficient government, local and central. There are three functions to be performed in government, legislation, determination of administrative policy and extent of work, and the actual executive work. In England, legislation is in the hands of Parliament; but large cities not infrequently obtain special legislative power to meet local needs; and by this means have succeeded in advancing local efficiency above the average standard. Local authorities, furthermore, have the power to make regulations and by-laws for special purposes, subject to the approval of the Central Authority.

In settling the details of local administration, the elected representatives of the public are supreme. They meet in Council, and action is taken on a majority vote. The councils of counties and cities, and even of smaller municipal boroughs divide themselves into committees, consisting of about a dozen members, elected by vote of the whole Council. The chairman or mayor of the Council has no special power, except that he may give a casting vote.

The chief defect in local sanitary administration in England is the continued existence of a large number of small and relatively inefficient local authorities. The larger authorities, as a rule, do their work well, and polities enter but little into elections. Official posts are not vacated with changing councils. These councils are approximating to the ideal of a complete local Parliament dealing with all governmental concerns, and to the further ideal that each unit of government should be large enough to minimize the influence of local interested motives, and to undertake each department of municipal work on a con-

siderable scale. The local Parliament has committees concerned with police, finance, public health, education; and when the urgently needed poor-law reforms are made, and when the Education Committee hands over its medical work to the Public Health Committee, the ideal will become a fact.

Power is already given to coopt a few persons on to some of these committees who are not members of the Council, from among men or women having special knowledge of the Committee's work; and the exercise of this power has been found to be useful.

But in each committee it is the direct representatives of the public who decide points of policy and settle the main outlines of administration. There is growing up a tendency to appoint local advisory committees, consisting of special groups representing professional or trade interests. Thus a medical committee may be consulted on medical proposals, and so on. This is still in the experimental stage. It may prove permanently useful, as voicing the occupational aspect of any proposed work of the municipality; but it will need to be kept to its strictly consultative limitations, and the responsibility of the Council as representing the combined wisdom or unwisdom of the entire community must be maintained.

All substitutes for government of the people by the representatives of the whole population are open to objection. They do not contain within them the elements of permanence. If there is a corrupt council, the remedy is not its supersession by an independent executive. Such an executive is the abrogation of popular government. "Good and efficient government is possible under almost any form of organization. More depends upon men than devices . . . But . . . if we believe that the functions of deliberation or determination of municipal policy and of administration or the execution or carrying out of that policy should be kept distinct, we cannot avoid the conclusion that a city council is a necessary part of the municipal organization."³

Each committee of the local Council is advised by the County Clerk or Town Clerk on legal and administrative matters; and the medical officer of health and other expert officers, like the legal adviser, in nearly every instance, hold office during good behavior. Under the above arrangements the elected members and the officials are kept in touch with each other. The latter's recommendations and actual work must be approved by the former; and this works well under the system of determination of policy by committees,

³ Goodnow: *Municipal Problems*, p. 226.

subject to confirmation and control by the entire Council. The motive power is public opinion. Good work cannot for any prolonged period go beyond what the public demand, and the work of officials is one of constant education of their masters and of the public.

The Training and Tenure of Office

Every sanitary district is required to appoint a medical officer of health and since 1888 every medical officer of health for a district with a population exceeding 50,000 must have a special diploma in public health. The enforcement of this requirement has done much to raise the standard of work of these officers. It is significant, furthermore, that while in 1873 the percentage of the total population of England and Wales having whole-time medical officers of health was only 20.6, it has increased to 61.4 per cent in 1911. In the metropolis, in the whole of Scotland, in every English county (forty-four) and in many other districts these officers possess security of tenure, in the sense that they cannot be removed from office without the consent of the Central Government, which usually pays half their salaries. Even without this safeguard, removal from office by the local authority is rare; but there has been long delay in securing the further reform that in all areas the medical officer of health should be able to perform his difficult and sometimes obnoxious duties without fear of removal from office, or of reduction in his emolument, except as the result of deliberate action on appeal to a central authority.

When pensions can be earned by medical officers of health and by all medical men on the public health staff, their position will become more attractive for men of good standing; and this reform has become more important in view of the steadily increasing complexity of the medical work now undertaken in a large public health department. It will include *inter alia* the following officers and activities: superintendent medical officers of health; district medical officers of health; tuberculosis officers; medical officers of maternity and child welfare centers, of venereal disease centers; fever hospitals, and tuberculosis sanatoriums and hospitals.

The development of a graduated public health medical service in which each physician employed will be able to develop his own special abilities, will be easier when to the above list is added the work of district (late Poor-Law) medical officers; medical practitioners attending insured persons and such other persons as are treated at the expense of the State; treatment centers for special conditions of the ear, eye, throat; gynecological

and other special departments; hospital treatment for general diseases.

That there will be development in these directions when the tangle caused by the National Insurance Act of 1911 has been unravelled, there can be no doubt.

I have in another address expressed my opinion as to the additional tangle introduced into the Central and Local Government of the United Kingdom by the National Insurance Act of 1911.

The failure of the British Government to act on the recommendations of the Poor-Law Commission of 1909 was a serious misfortune to public health. Sickness is the cause of a predominant part of our total destitution, and to allow the continued separation of administrative action respecting these two problems is inconsistent with a full measure of success. Political circumstances, however, led to the adoption of a course which, medically, ran directly athwart the course of needed reform.

The National Insurance Act and Public Health

The National Insurance Act was passed, placing one-third of the total population (all employed manual workers and other employed workers with an income below £160, since increased to £250) under an obligation to pay 4d weekly (women 3d), 5d being contributed for each person by the employer (3d) and the State. In return each worker received a money payment weekly during illness, attendance by a doctor, sanatorium treatment for tuberculosis, and a maternity benefit on the birth of a child to his wife (30 shillings) or, if the wife also is industrially employed, an additional 30 shillings. The medical benefit is limited to such domiciliary attendance as a medical practitioner of average ability can furnish. It continues the old conception of private medical practice, and allows the public to remain obsessed with the notion that satisfactory medical care consists in a "visit and a bottle." No provision is made for pathological aids to diagnosis, beyond what is already provided by public health authorities. No nurses are available for serious cases; the insured person is not entitled to surgical operations, when needed, except of the simplest character. With few exceptions, no appliances are provided; the treatment of special diseases of the eye, ear, nose and teeth is commonly excluded. No hospital provision whatever, except for tuberculosis, is made.

The contract system of medical practice has been accompanied by a serious amount of lax certification of sickness. The sanatorium benefit is unnecessary, as soon as the duty of public

authorities to provide treatment for tuberculosis is declared obligatory. It is already very largely provided. The maternity benefit is entirely unconditional; there is no guarantee that it is devoted to the welfare of the mother and infant. It needs to be supplemented or replaced by the arrangement for providing nurses, doctors, midwives, and domestic assistance in process of development by public health authorities. In short, there is no justification for providing medical services, preponderantly at the expense of the state (contributions by employers are a form of taxation), which are limited to a favored portion of the total population, and which do not benefit all in need of these services.

Provision Against Disability

The principle of monetary insurance against sickness and disability is thoroughly sound. It forms a praiseworthy and valuable provision against future contingencies. Insurance, however, is not synonymous with prevention as is too often suggested. In England insurance has been an actual impediment to public health work, though it might have gradually become a useful auxiliary to it if otherwise organized, and especially if the creation of independent insurance committees representing interests to a preponderant extent had been avoided. But any medical service needed for purposes of insurance should not form part of the insurance system. Medical aid is needed for a large section of the population who are unable to afford deductions from their wages, or who have no wages. It is needed for wives and children as much as for the industrially employed head of the household; and it is needed for many others who are excluded from the scope of the National Insurance Act. Only when the medical is separated from the insurance service, and when the medical practitioner, as far as practicable, is made independent of the patient who desires too facile a sick-certificate, will good medical work and sound sickness insurance be secured.

General Summary

The preceding review of the history of public health in England is necessarily fragmentary. It does not include, for instance, a discussion of the relationship of the medical profession to public health authorities. On this I content myself with repeating my oft stated opinion that until every medical practitioner is trained to investigate each case of illness from a preventive as well as from what is often rather a pharmaceutical than a really curative standpoint, until a communal system of consultant and hospital services

independent of any insurance system is made available for all needing it, and until every medical practitioner is related by financial and official ties to this communal system, full control over disease,—to the extent of our present available medical knowledge,—will not be secured.

The communal system will include not only the provision of domiciliary nurses for all needing them, but also a greatly increased staff of public health nurses engaged in educational supervision in connection with the work of the communal services and of each individual practitioner. Such a system will repay the community manifold in improved health and a higher standard of happiness and well being.

If objection is taken to such wide sweeping proposals, let me remind you that free communal services of sanitation and education are already provided; and that the personal care of health is of equal importance with these. All will agree that a large proportion of the population cannot afford to pay individually for medical attendance and nursing under present conditions, still less for the consultant and hospital services which advance in medical service have rendered indispensable. There is always present in our midst a large mass of illness which might have been avoided or curtailed, had there been an organized system of state medicine.

Reducing the Sickness Rate

Lest any should be alarmed as to the possible consequences of the cooperative provision on such a scale of this primary need of humanity, let me remind you that cooperative medical aid differs from financial aid in an essential particular. It does not create a demand for further aid, but is always engaged in diminishing this demand. Dependency on financial assistance is liable to continue indefinitely; much wants more. This result of medical aid is almost inconceivable. The Reverend Doctor Chalmers, of Glasgow, said early in the last century: "Ostensible provision for the relief of poverty creates more poverty. An ostensible provision for the relief of disease does not create more disease."

Doctor Chalmers was opposed to the giving of any domiciliary assistance from rates or taxes, and he organized his parish so that every needy person was adequately helped out of charitable funds. But he advocated extended hospitals and other medical assistance for the poor; and until this is done, apart altogether from any system of insurance, and as a complete measure on the lines of our educational system, we cannot say that all that is practicable has been done to secure the physical well being of our fellow citizens.

THE AMERICAN PUBLIC HEALTH ASSOCIATION

BY C. E. A. WINSLOW, M.D., DEPARTMENTAL EDITOR, MODERN MEDICINE, NEW YORK.

THE American Public Health Association held its forty-seventh annual meeting in New Orleans, October 27 to 30, under the presidency of Dr. L. K. Frankel, of New York. There were more than 1,000 members and guests in attendance and 225 papers and committee reports were on the program of the Association and its various sections. The following officers were elected for 1919-20:

President, Dr. W. S.

Rankin, Raleigh, N. C.; vice-presidents, Dr. A. J. Douglas, Winnipeg, Man.; Dr. S. L. Jepson, Charleston, W. Va.; Dr. W. H. Robin, New Orleans, La.; secretary, A. W. Hedrich, Boston, Mass.; treasurer, Dr. G. H. Sumner, Des Moines, Iowa; new members of the executive committee, Dr. M. P. Ravenel, Columbia, Mo., and Dr. L. K. Frankel, New York City. San Francisco was selected for the place of the 1920 meeting.

A Progressive Association

The address by the president, Doctor Frankel, was delivered on Monday evening and dealt, first of all, with the encouraging growth of the American Public Health Association during the past year to a membership of more than 4,500, and to the satisfactory financial condition of the organization, due to the increase in sustaining and corporate, as well as ordinary, membership. The movement for state public health associations, affiliated with the national society, is making substantial progress and the organization of a National Health Council, made up of delegates from seventeen representative national health societies, promises much for the promotion of cooperative effort among those who approach the public health problem from various special angles.

Doctor Frankel then discussed the three tendencies of the time in the field of American public health, the active entrance of the American Red Cross into the public health campaign, the movement for compulsory sickness insurance, and the demand for a coordination and extension of Federal health activities. In connection with

A dynamic influence arises from the welding together of various public health agencies in a central body. The American Public Health Association is the power plant. Its members, the health officers of states, cities, and towns, and directors of medical and health organizations, and institution heads, generate the power. They have wrought the good that has come with well-functioning health machinery. They have energized ideas. The time is come when new channels are needed to accommodate new burdens and new responsibilities. The expression of this need heard at the New Orleans convention of the Association becomes a summons to health organizations everywhere.

the first of these problems he pointed out the tremendous possibilities of the public health nursing and health center movements initiated by the Red Cross Society and the necessity for close coordination of such efforts with those of the legally constituted health authorities, and recommended the appointment of a special committee of the Association to confer with the Red Cross in regard to its plans. In dealing with the question of

sickness insurance Doctor Frankel pointed out that there are three problems which should be kept distinct: the control of preventable disease, the supplying of adequate medical and nursing care, and the compensation of wage earners for the wage losses caused by illness. The first of these functions clearly belongs to the regularly constituted health authorities and there seems some tendency for the second to pass into their hands in connection with certain diseases. He therefore recommended that the interrelationships between these sanitary and medical functions and the direct economic problem of sickness insurance should be studied by a special standing committee of the Association.

Sir Arthur Newsholme, the other principal speaker at the opening meeting of the convention, also discussed the question of sickness insurance and expressed the view that the insurance problem should be treated as a separate one, but that anything which tended to separate the first two functions of the prevention and treatment of disease was unfortunate from the standpoint of both.¹

The second general session of the Association was devoted to influenza. Dr. A. W. Freeman, of Ohio, discussed administrative measures of dealing with this disease, pointing out that we still lack the theoretical knowledge on which to base a real campaign of prevention, and emphasizing the importance of adequate provision for medical and nursing care. Dr. W. H. Peters, of Cincinnati,

1. The address by Sir Arthur Newsholme is published in this issue of MODERN MEDICINE, page 655.

and Dr. D. B. Armstrong, of the Framingham Health Demonstration, discussed the after effects of influenza; and the latter presented valuable comparative figures showing a definite though not alarming increase in heart and respiratory affections.

The third general session was devoted to the coordination and expansion of Federal health activities. Dr. W. S. Rankin, of North Carolina, delivered a notable address on this subject and urged the appointment of a committee to study the question and to ask for the appointment of a Congressional Committee on the subject along the general lines of the France bill.² Dr. B. S. Warren, of the United States Public Health Service, Dr. W. S. Small, of the Bureau of Education, and Dr. Anna Rudd, of the Children's Bureau, spoke from their different and somewhat divergent viewpoints in regard to the problem of coordination, and Dr. F. R. Green, of Chicago, strongly supported Doctor Rankin's plea for a careful diagnosis of the whole situation before the attempt to secure final action. Dr. L. L. Lumsden, of the United States Public Health Service, urged a nation-wide campaign for the saving of 250,000 lives within the coming year.

The last of the general sessions of the conference was devoted to malaria, and the program was one of the best ever presented before the Association. Prof. C. C. Bass, of Tulane, discussed cinchonization as a factor in malaria control, pointed out the frequency of relapses due to incomplete treatment, and estimated that if physicians treated the malaria cases that came to them effectively, over a period of eight weeks, a 90 per cent reduction would be accomplished in ten years, while the popularization of a standardized home treatment would accomplish a similar result in three years. Mr. J. A. Le Prince, of the Public Health Service, spoke on drainage as an anti-malarial measure, and Capt. D. L. Van Dine on the mosquito work of the United States Bureau of Entomology, while Dr. R. H. Carter, of the Public Health Service, gave an admirable resumé of costs and results of malaria control by drainage and cinchonization in various typical districts of the south.

The Public Health Administration section, under the chairmanship of Mr. C. H. Wells, of Wilmington, Del., held six full and valuable sessions. Among the contributions of greatest general importance may be mentioned a symposium of the privy as a public health problem in which Dr. L. L. Lumsden, Dr. J. A. Ferrell, Dr. E. C. Levy, Dr. C. W. Stiles, and others participated; papers

on venereal disease control by Dr. W. F. Snow and Dr. C. C. Pierce; addresses by Dr. M. P. Ravenel on preventive medicine in the war and by Col. F. R. Keefer on army rejections for physical disability; and papers on the control of hookworm disease, leprosy, tuberculosis, and degenerative diseases. Dr. W. H. Kellogg, of Sacramento, Cal., described a most interesting and somewhat disquieting outbreak of pneumonic plague on the Pacific coast, in which thirteen cases and twelve deaths resulted from a primary bubonic case in a hunter of ground squirrels. It may be noted in passing that a death from typical bubonic plague occurred in New Orleans while the convention was in session and that the Association went on record in favor of a Federal appropriation of a million dollars, to be expended by the United States Public Health Service in the eradication of plague among the ground squirrels of the Pacific coast. The keenest interest was naturally manifested in discussion of methods for securing adequate appropriations for public health work. Dr. E. C. Meyer, of the International Health Board, and Dr. Haven Emerson, of New York, emphasized the need of complete systems of health department accounting and budget making on a functional basis, and Dr. C. J. Hastings, of Toronto, gave a characteristic touch of his whole-hearted fighting optimism to the discussion.

The laboratory section, Dr. R. B. Fitz-Randolph, of Trenton, N. J., chairman, held four sessions, the feature of which was, as usual, the presentation of a comprehensive series of committee reports on standard methods for the examination of water, sewage, milk, air, and shell fish, and for the preparation of various biologic products. An important step was taken by the organization of a standing committee to deal with the reports of all the special committees on standard methods and formulate an official procedure for dealing with them. Numerous technical papers were presented, on water analysis, diagnostic tests, and the preparation of biologic products. Dr. A. B. Wadsworth, of Albany, N. Y., and his associates made an important contribution to the classification of the meningococci and a report by Dr. W. H. Park, of New York, emphasized the failure to demonstrate any primary relation of the Pfeiffer bacillus to epidemic influenza.

The Sociological Section held three notable meetings under the chairmanship of Dr. L. I. Harris, of New York. The first was devoted to the relation of living conditions to health and included a presentation by Mr. Royal Meeker of the valuable family budget statistics of the United States Bureau of Labor Statistics and a discussion of the sanitarian's definition of a living wage

² Such a committee was formally authorized by the Association in a later vote.

by Dr. D. B. Armstrong of Framingham, Mass. The second session dealt with the influence of industrial conditions and relations upon health, and the third with community medicine. Dr. E. C. Meyer, of the International Health Board, spoke on the relation between community medicine and public health; Dr. F. E. Froneczak, of Buffalo, N. Y., on health centers; and Dr. Haven Emerson, of New York, on an evaluation of the Cincinnati Social Unit Experiment.

Section of Industrial Hygiene

The section on Industrial Hygiene was under the chairmanship of Dr. J. W. Schereschewsky, of the United States Public Health Service. The notable feature of these sessions, aside from a discussion of industrial fatigue by Prof. F. S. Lee, of New York City, was the emphasis laid by many speakers on the value of industrial clinics and the contribution made to the practical technic of the conduct of such clinics. Dr. J. S. Billings presented a valuable record card and system for classifying impairments and defects, used by the eastern group of Bell Telephone companies, and Mr. A. D. Reiley emphasized the value of group insurance as a factor in industrial hygiene. Papers were presented on health hazards in the dye industry by Dr. A. K. Smith, of Wilmington, Del.; on health hazards of non-poisonous dusts, by Dr. E. R. Hayhurst, of Columbus, O.; and on the control of the dust hazard in sand blasting by Prof. C.-E. A. Winslow, of Yale University.

The Sanitary Engineering Section, Mr. E. A. Fisher, of Rochester, N. Y., chairman, held three meetings devoted chiefly to reports of committees on sanitary control of waterways, on sewerage and sewage disposal, on sewage works operation, on water supply, on water works operation, on refuse collection and disposal, and on milk pasteurization. This section, like the Laboratory Section, does its work very largely through such a committee system and the annual summaries of current progress which are presented are of great interest and value. Special mention should be made of an able presentation by Messrs. Morris Knowles and M. R. Scharff, of Pittsburgh, of the place of the non-medical man as a health officer.

The section of Vital Statistics with Dr. W. H. Guilfoy, of New York City, as chairman, held four well attended meetings. The papers dealt largely with details of statistical practice,—with morbidity records, accuracy of causes of death, birth registration, industrial mortality statistics, and the handling of non-resident deaths. The last meeting, a joint session with the Public Health Administration Section, was devoted to influenza. Special studies of army statistics and of statistics

of the epidemic in New York and in Connecticut were presented at this meeting, with the results of the Metropolitan Life Insurance Company experience, by Dr. L. K. Frankel and Dr. L. I. Dublin, and a study of variations in incidence and mortality at different periods of the epidemic, by Dr. Edgar Sydenstricker of the United States Public Health Service. The outstanding contribution was an illuminating report by Dr. W. H. Frost on the results of the intensive surveys conducted by the United States Public Health Service in eleven different communities throughout the country, a report which constitutes an invaluable addition to our knowledge of the epidemiology of this obscure and terrible disease.

Food and Drug Section

The Food and Drug Section held four meetings with Mr. H. C. Lythgoe, of Boston, as chairman. Among the problems discussed were the handling of drug addicts, by Dr. E. S. Bishop and Dr. C. E. Terry, of New York, the organization of commercial laboratories for the control of food products, the conduct and supervision of cold storage and dehydration of foods, meat inspection, and the construction and operation of slaughter houses. Prof. M. J. Rosenau, of Harvard, presented a committee report on the relation of food to disease, and Prof. H. C. Sherman, of Columbia University, a report on nutritional problems. Doctor Rosenau's discussion indicated clearly the small part played by foods in general in the causation of disease, and Professor Sherman emphasized the importance of a greatly increased use of milk in the diet, particularly as a preventive of pellagra in the south. Dr. E. R. Kelley, of Massachusetts, strengthened the case for milk by pointing out the small part played by well supervised milk supplies in the production of communicable disease, and Dr. F. O. Tonney, of Chicago, described the excellent organization for the control of milk pasteurization which has been developed in that city.

In addition to the formal meetings of the Association and its sections, special programs were presented on Personal Hygiene, President Dimwiddie, of Tulane University, chairman; and on Child Hygiene, Dr. Julius Levy, of Newark, chairman. The former dealt with such topics as fatigue, mouth hygiene, orthopedics, mental hygiene, and the personal hygiene of problems peculiar to women; while the latter held one session on school hygiene and one on state programs for child hygiene. Groups of persons interested in both these meetings petitioned for the creation of formal sections of the American Public Health Association devoted to the respective fields of

personal hygiene and child hygiene. An excellent exhibit added to the interest of the New Orleans meeting, the most notable features being exhibits dealing with venereal disease, contributed by the United States Public Health Serv-

ice and the American Social Hygiene Association; and a comprehensive exhibit illustrating the equipment and organization of health centers as contemplated by the plans of the American Red Cross.

FULFILLING THE PART OF PHYSICAL EDUCATION IN RECONSTRUCTION

BY THE HON. JOSEPHUS DANIELS, SECRETARY OF THE NAVY, WASHINGTON, D. C.

IF WE count by heroic experiences, the passing of old issues, and the vision of new duties, it has been a hundred years since the Great War began. We will never go back to the world as we knew it in 1914, and the men who seek in this new day to revive old slogans and call into life ancient shibboleths have no place of leadership in this new and better day that is born out of travail and sacrifice and valour. Such men might as well be interred in the catacombs of Salt River so far as their influence upon the thought and action of the era of new progress just ahead of us is concerned.

The issues that call for settlement, aside from the greater ones composed in the Paris Conference,—and that conference will give permanent peace by providing an international tribunal for passing upon international differences and an international police to enforce its decrees,—will make here in America a practical, working democracy that will be safe for the world. Labor must receive a large share of what its brain and muscle provide; we must have a merchant marine that will carry much of the commerce of the world; and our readjustment must be attended with vigilance lest the burdens of the war shall be transferred to the consuming many. But there is a problem more fundamental than any of these, which concerns every individual and the Nation as a whole. The conservation of manpower is perhaps the biggest of all the questions before us today.

The fundamental strength of a nation in peace or in war lies in the vigor and endurance

PREPARE THE NATION FOR ENDURING EFFICIENCY!

Under the duress of war and under the influence of impending calamity we in America recognized with shame our neglect of youth and made plans that this neglect should cease. We promised ourselves that in the future we would conserve our human resources.

Now that the war is over we are told that England will not forget; and we are told that France will not forget. Will it be said that America forgot? That she had use for her young men only for the purpose of war?

This must not be true! We cannot forget!

of its people. We have always known this to be true, but the terrible demands that have been made upon the man-power and woman-power of the world during the last four years have impressed that fact upon us with a grim and cruel fearfulness that we cannot and should not soon forget. We have long known that a large proportion of our people reach maturity limited in usefulness and limited in opportunity because of their indifferent, unwise, or injurious preparation, or lack of preparation, for the demands and exigencies of citizenship. We have long been aware of stunted growth, poor development, bodily defects, physical weakness, physical incompetency, and physical ignorance in our citizenship. Our commanding officers in the Navy and the Army have long held that the greatest service which our communities, our schools, and our colleges can furnish as a preparation for a rapid and effective military training will come when our communities, our schools, and our colleges furnish the government with vigorous, healthy, physically educated young men. But when we threw a great army of our young men into the military scrap-heap at the time of draft examinations, because of physical defects and physical deficiencies, we realized with an intense national apprehension that the long standing disregard of our citizens in their growing periods was a national neglect that might easily lead to national disaster.

No Longer Indifferent

It was only a few months ago that the Allies



The only equipment necessary for the contest illustrated in the photograph above is two six-pound medicine balls. The most poverty stricken rural school can well afford them, and the children should have them.

were counting their youth with feverish anxiety. The fate of our institutions and our ideals was said to depend upon the nation that could furnish the last man. England took stock of her human resources and made plans that her "wasted years" of indifference to the physical education of her children should never be repeated. France has faced her problem with the same determination. In America, seven of our states in two years passed laws requiring more or less active physical education in their schools. Under the duress of fear and under the influence of impending calamity we recognized with shame our neglect of youth, and made plans that this neglect should cease. We promised ourselves that in the future we would conserve our human resources.

Now that the war is over we are told that England will not forget; and we are told that France will not forget. Will it be said that America forgot? That she had use for her young men only for the purposes of war?

This must not be true! We cannot forget!

Because of the extravagant, immediate, and compelling demands of war, we face today the equally im-



Wholesome play forms a part of the daily routine in the schools of New York City.



Exercises of this nature build health, initiative, and character.

portant but less acute and less dramatic demands of peace, realizing more vividly than might otherwise have been possible that the

greatest and most fundamentally important problem of reconstruction before us is the conservation of our human resources. And the world has learned that this conservation may be best achieved through universal physical education, whereby every girl and every boy may be prepared for vigorous, enduring, efficient adult life for peace or for war.

Who Is to Lead the Way?

It cannot be said that we have forgotten,—at least not yet. For there are many agencies in America now working for better care of our youth. In a single week five national organizations unanimously adopted resolutions and appointed committees that are concerned with the establishment of a broad, thorough, universal, physical education through childhood and youth, including informational hygiene, regular and thorough health examinations and advice, and constructive health habits and health training through physical training, play, games, and athletics. A National Committee on Physical Education has been formed with representatives from fifty national organiza-



In America, seven of our states have passed laws requiring more or less active physical education of this sort in their schools. These are Baltimore school children.

tions concerned with various phases of child welfare. And, finally, one of our most powerful associations has established a National Physical Education Service in Washington for the particular purpose of participating in this great campaign.

The Government has authorized and directed the formation of an interdepartmental Board representing the departments of Treasury, War and Navy. This Board is concerned with a very important phase of this problem of conserving the man-power and the woman-power of America. As Chairman of that Board, I know I express the sentiment of my colleagues on the Board, Mr. Glass, Mr. Baker, and the other members, when I state that the success of this interdepartmental Board in its program for the control and eradication of venereal diseases through information hygiene, education, prevention, treatment, and rehabilitation depends upon wide cooperation, and it depends upon the success with which we as a nation construct and operate our readjustment program, and particularly upon the success with which we operate a universal program of informational and applied hygiene along the lines laid out by these national organizations.

Our program of prevention, of cure, and of rehabilitation in venereal diseases cannot achieve an adequate success unless it is associated with a program of instruction that necessarily forms a part of a well ordered, comprehensive program of physical education; no plan for national reconstruction will achieve the full success which the

people of this country should and do demand unless that program includes universal physical education or its equivalent for all the years of childhood and youth. That program must cover informational hygiene, regular, thorough health examinations and advice, and the formation of wise corrective and constructive health habits, emphasizing especially the health, the educational, the growth, and the developmental values of play, games, recreation, athletics, and physical training.

Ohio in Campaign for Health

Practically every county in Ohio is exceeding the minimum of the Hughes Act in establishing the new district health department which begins operation January 1, by providing for workers in addition to the health commissioner, nurse, and clerk required by the law. Several have provided for health commissioners at salaries ranging from \$3,000 to \$4,000 a year, staffs of three or more nurses, and such deputy and sanitary inspectors as may be rendered necessary by local conditions.

Dr. Hugh Cabot Goes to Ann Arbor

Dr. Hugh Cabot of Boston, has been appointed chief surgeon at the University of Michigan, Ann Arbor, and will begin his new duties early next year. Doctor Cabot went to England in 1916 with the Harvard Unit and commanded General Hospital No. 22, British Expeditionary Forces with the rank of lieutenant colonel, and was made Companion of the Order of St. Michael and St. George. He is at present clinical professor of genito-urinary diseases in Harvard University School of Medicine, chief surgeon of the surgical service at Massachusetts General Hospital, and director of clinics of the state board of health.

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., Editor

THE COAL STRIKE AND THE INDUS- TRIAL PHYSICIAN

FOR weeks past the people of the United States have been facing the catastrophe of a coal strike, following the inability of the operators and the miners to find some common meeting ground at their first session in Washington. The intervention of the government with injunction proceedings resulted in a favorable court decision, ordering the miners' officials to cancel the strike order. While the miners were publicly ordered to resume operations with the mines, the men actually did not obey the order, and a serious coal shortage has ensued. Many plants have been forced to close down, while their workers innocently have become the victims of this labor controversy.

The demands of the miners are of vital interest to the public. No serious minded citizen can refrain from giving some attention to the subject. Since these demands are based largely on the plea for better living and working conditions, the medical profession should rightfully be concerned in this controversy.

Much has been said of late as to the value of the physician's possible contribution to the amelioration of the very antagonistic relationship existing between many employers and employees. It cannot be gainsaid that consideration of the health of the worker and his living and working conditions is the most human common meeting ground for these two groups, and that better feeling can be established and enlarged cooperation ingrafted thereon. If these things be true, they should be taken into account in the present coal strike.

The business world generally has failed to appreciate the positive economic value of good health. It may know that disease is a liability, but it does not recognize that health is an asset. Political and social economists have failed equally to recognize the contribution that the socially minded physician might make in the discussion

of labor problems. They do not realize how the physician might at least clarify the atmosphere decidedly about the living and working conditions, which are always forcibly brought out in the appeal to the public in almost all industrial struggles.

If we take the coal strike, for example, we see that the demand for a thirty-hour week and a 60 per cent increased pay is based on the plea for better living and working conditions. The granting of the demands for certain hours and an increased pay would not necessarily assure either better living conditions or working conditions. Yet it is by these factors that the public's sympathies are enlisted. Better living conditions are chiefly made up of good housing, good sanitation, sewerage, good water, pure food and milk supplies. Add to this education and proper recreation, and there will be included a series of things that the community is responsible for, and which must be provided as forming the only sound basis for safe citizenship. If the coal company owns the town, the public should force it to provide these minimum conditions, and the public should be willing to be taxed sufficiently in its coal bills to secure these facilities to the miners and their families.

Likewise the minimum requirements or good working conditions,—safety, lighting, air conditions, the comforts and conveniences of the men while at work,—are also matters that should be regulated by the state. Both these social requirements are without consideration of the wage. They are fundamental and are measurable by the properly trained physician and hygienist.

If the public required duplicate standards of living and working conditions such as have been referred to, the sympathetic side of the particular controversy would then be removed from the discussion and there would be left for adjudication the matter of a proper wage, which many industries are readily solving by adjusting the wage to the ever changing cost of living.

The remaining large question that the govern-

ment must meet, is that of the continuous flow of work to the miner. It is not without reason to say that the government is in position to regulate and equalize the mining of coal and make it less a seasonal occupation.

It would seem that the public has a right to say, after satisfying itself that the living and working conditions are proper, whether the coal miner is or is not a slacker when he asks for a thirty-hour week. All other conditions being equal, the public would probably not single out the coal miner and so extend his leisure hours to a point where his leisure time would become an actual menace, and thus present a new problem for solution.—EDITOR.

AN IMPORTANT GROUP OF ARTICLES

THE editors of MODERN MEDICINE respectfully direct attention to the excellent group of articles presented in the department, "Medicine and Industry," in this issue. There are seven of

these articles. Six are medical papers which were read at the annual conference of the International Association of Industrial Accident Boards and Commissions at Toronto in October; namely, "The Need of Recognition and Better Treatment for Mental and Nervous Injuries," by Dr. Francis D. Donoghue; "The Securing of Proper Medical Service for Injured Persons," by Dr. John W. Trask; "Infections of the Upper Extremities," Dr. P. A. Bendixen; and "Disabilities as Aggravated by Pre-Existing Conditions," by Dr. John W. Mowell; "Better Methods in Medical Service," by Dr. F. H. Thompson; and "How Can Medical Service Be Improved?" by Dr. Morton R. Gibbons. In the January issue there will be printed several other important medical papers which were presented at the Toronto meeting. The editors desire to acknowledge their thanks for the courtesy of the Organization and of Royal Meeker, Commissioner of Labor Statistics, and secretary-treasurer of the Association, for their assistance in securing the manuscripts.

BENZOL POISONING

BY R. P. ALBAUGH, M.D., CLEVELAND, OHIO, FORMERLY DIRECTOR DIVISION OF INDUSTRIAL HYGIENE, OHIO STATE DEPARTMENT OF HEALTH

BENZOL, because of its toxicity, is considered one of the most important industrial poisons. It differs from its homologues in that its poisonous effects occur suddenly, whereas the other hydrocarbons of coal tar produce a gradual narcosis with slow recovery. According to Rambousek, small quantities in the air are poisonous, the limit for animals being 0.015 to 0.016 parts of benzol to one thousand parts of air. Experiments have shown that man, exposed to a mixture of benzol and air, absorbs 80 per cent of the benzol. It is encountered chiefly in the manufacture of the hydrocarbons of the aromatic series, in the technical use of these products, in the removal of grease from materials, in varnish factories and the rubber industry. Benzol is classed with the nerve irritant poisons, and has a general action on the protoplasm of organic cells as well.

Symptoms.—In the mild acute cases there are cerebral disturbances, humming in the ears, giddiness, irritant cough, and sometimes nausea and vomiting. In the more severe cases there are symptoms on the part of the central nervous system, with chilly sensations, tremor of the extremities and, finally, tonic and clonic convulsions. The skin is usually pale and livid and the lips bright red in color. There may be hallucinations, delirium, protracted unconsciousness, followed by death in tonic convulsions. While fatal cases

usually follow this course, death may occur very suddenly, either during exposure or some time following exposure. A case has been reported in which a man was required to enter a still just before the end of his work day and left the plant apparently well, but was found dead a few moments later, several hundred feet from the plant. In chronic poisoning there are severe anemia, hemorrhage beneath the skin and of the mucous membrane, and fatty degeneration of the heart, liver, and kidneys. Clear distinction never has been made between benzol and petroleum benzine poisoning, the symptoms being similar, especially in mild acute and chronic poisoning.

Prevention and Treatment.—Distillation of raw materials requires to be done under effective cooling and in impervious apparatus. Stills, receivers, tanks, etc., should only be entered for the purpose of cleaning or repairing after preliminary thorough removal of all residue of benzol and thorough ventilation. Workers entering such apparatus should be equipped with approved breathing apparatus. Where benzol is handled, every effort should be made toward the confinement or removal of fumes. Because of their susceptibility, females should be excluded from every employment in which benzol is used. The treatment consists of prompt removal of the patient into the fresh air with artificial respiration.

THE RECOGNITION AND BETTER TREATMENT FOR MENTAL AND NERVOUS INJURIES

BY FRANCIS D. DONOGHUE, M.D., MEDICAL ADVISER, MASSACHUSETTS INDUSTRIAL ACCIDENT BOARD, BOSTON.

IT HAS BEEN extremely gratifying to watch the evolution of the idea that *efficient and sufficient* medical treatment is a fundamental of workmen's compensation. I believe that papers before this Association and the spreading of the gospel of light by the members of this Association as they have gone out from these meetings, especially the work of our Secretary - Treasurer, Dr. Royal Meeker, have been determining factors in gradually carrying the truth home.

Last year I called to your attention the disabilities of the hand and the need for specialization in the treatment of this class of injuries if the disability period was to be minimized and the future efficiency of the injured workman maintained. This year I will take it for granted that we all agree that continuous adequate medical treatment is a necessity, and not a luxury, and whether or not the obligation is carried in the law under which a board operates, insurance companies have recognized the necessity of providing care irrespective and independent of their legal obligation if they are to continue to be successful in the compensation field.

A Profitable Comparison

The new law of Nova Scotia, which our good friend Armstrong prognosticated at the Madison meeting, shows how far it is possible to go in the administration of a state fund and, while the terms of Section 1 and Section 3 in regard to medical aid, quoted below, may seem to us drastic, it will be interesting and instructive to compare this direct control with the more lax, indirect or absent control of treatment which obtains under other commissions.

Sec. 1. "Every workman entitled to compensation under this Part, or who would have been so entitled had he been disabled for seven days, shall be entitled dur-

THE USE OF PERSONALITY STUDIES IN COMPENSATION

The volitional index of a patient determines the degree of coöperation that may be counted upon in bringing him back to efficiency. Psychic fear, with or without physical injury, may induce a set of inhibitions most baffling to control.

With the possibility of compensation, there is added the question of motives which further confuses the issues.

The care of such cases constitutes one of the most difficult problems of accident boards, and their classification demands the most impartial consideration of the scientific mind.

ing the period of thirty days from the date of the disability to such medical and surgical aid and hospital and skilled nursing services as may be necessary as a result of the injury."

Sec. 3. "Such medical aid shall be furnished or arranged for by the Board or as it may direct or approve, and shall at all times be subject to the supervision and control of the Board, and shall be paid for by the Board out of the Accident Fund or as herein otherwise provided, and such amount as the Board may consider necessary shall be included in the assessment levied upon the employers."

While the disabilities of the hand and the upper extremity are extremely costly in every sense of the word, there is a group of cases perhaps not so expensive from a monetary standpoint but more trying to handle, and for which less facilities exist than for the greater group of cases, surgical and medical, with which we have most to deal.

Why Medical Advisers Are Needed

No group of cases indicates the value of a medical adviser to a board any better than the group of cases that I am about to discuss.

No man can possibly be an expert in all the lines of medical activity which have contact points with the administration of the workmen's compensation law and, to my mind, the best administration will be obtained that utilizes for the purposes of administration the best that the medical community affords.

I have been aided in the preparation of this paper and in my work as medical adviser by having as advisers and impartial physicians, Dr. William J. Daly, of the neurological department of the Boston City Hospital; Dr. H. B. Eaton, of the neurological department of the Massachusetts General Hospital; Dr. Edward B. Lane, superintendent of the Adams Nervine Asylum; and Dr. Elmer E. Southard, director of the psychopathic department of the Boston State Hospital. I wish to acknowledge publicly my obligation to these gentlemen.

In the beginning of the workmen's compensation law abroad and in the early papers about workmen's compensation in this country, attention was frequently called to the dangers of vale-tudinarianism, not in the sense that the word is ordinarily used as applying to a person in infirm health or subject to frequent illnesses, but in the sense of a person who, by prolonged introspection, acquires the habit of ill health or who does not acquire a desire to return to work following injury.

From our experience, I am convinced that when these conditions exist they represent, in great measure, a lack of diagnosis or understanding of some real condition which, if properly diagnosed, might be remedied.

In the early days of the war before the effects of psychic trauma were recognized, I am informed that the French and English were drastic in their treatment of those who showed mental lapses which had not up to that time been properly diagnosed or classified in psychic pathology.

The treatment accorded to those losing the use of their mental stabilizers under stress of warfare is comparable in a measure with the mal-treatment of those who suffer psychic shock with its various manifestations in times of peace, and who come before our various accident boards.

Dr. E. E. Southard, at the meeting of the International Association of Industrial Accident Boards and Commissions in Boston in 1917, pointed out one source of failure in the proper care in this group of cases.

Personality Studies and Research

Doctor Southard stated that "as you are aware, those of us who deal with mental diseases, whether practically or theoretically, as a rule find ourselves brought into medical councils, if at all, at the eleventh hour. The lack of progress in the psychiatric branch of medicine is due not entirely to the complexity of the topic, but largely to actual neglect on the part of those who are concerned administratively, either in medical schools or in medical institutes, with the development of departments and the choice of research lines. Of course, this neglect is in itself partly due to the feeling of the complexity of the topic, a feeling entirely out of proportion to its actual complexity." But if the hands of medical schools and of medical institutes for research are prone to neglect the nervous system and the mind, it is not at all true of such companies of practical men as are found in industrial accident boards and commissions.

Dr. H. M. Adler, of the Psychopathic Hospital, has presented a study on "Unemployment and

Personality" in which paper he calls attention to three main factors, "feeble-mindedness, paranoid conditions, and periodic emotional diseases" for difficulty in industries as related to mental disease and defect. How many industrial accidents are really due to psychopathic conditions it is impossible now to say, but it is clear that one of the major groups in Doctor Adler's analysis, namely, the feeble-minded group of workmen, must be responsible for many accidents, despite the fact that the higher grades of feeble-mindedness are entirely consistent with good routine industrial work for years and even decades.

These are the cases which, when the routine is interrupted by accident, are so different to bring back to working ability.

Doctor Adler has also made another contribution on "The Psychopathic Employee," which carries the idea still further and gives summaries of actual cases upon which the psychopathic hospital conclusions were founded.

I will not quote further from this excellent paper of Doctor Southard's but will refer you to Bulletin No. 248 of the *United States Bureau of Labor Statistics*, for a resumé of the cases which were studied by Doctor Southard for the Industrial Accident Board of Massachusetts.

Certainly it appears that the proportion of these cases is on the increase and this increase brings with it, unless the cases are closely analyzed, a feeling of exasperating helplessness, a feeling at times that a good law is being hampered and being ridden by cases which, superficially considered, appear parasitic.

But that a large portion of these cases are genuine and are closely connected with or modified by some subsequent injury, is undoubtedly true.

The ability to separate the individual who is generally confounded with this class, namely the malingerer, is a task which is difficult for the skilled medical diagnostician, and it should never be forgotten that an apparent malingerer may have the symptoms of a border-line psychotic condition.

What can be done for these cases and what to do with them, merit careful study.

Psychotics a Potential Burden

The community is full of a large number of people who are hanging on by the skin of their mental teeth, who are potentially and oftentimes really cases of *dementia praecox*, but who are able to sustain the ordinary burdens of life up to a certain point of stress and then become the pronounced psychotic.

The difficulty in handling those cases which proceed from a mental basis arises primarily from

lack of proper classification, and this is due to inexact diagnosis. It may seem trivial to say that it is frequently difficult to diagnose a functional nervous condition; call it what you will, but the fact is that the treatment of these nervous conditions which shade off into each other and resemble each other so closely is so radically different that the success of treating the group depends upon the proper treatment of each component part.

As regards the subdivision of the class, a good working classification of these cases, call them what you will, is: (1) hysteria after injury; (2) psychasthenia after injury; (3) depressed states and melancholia after injury; (4) paranoiacs; and (5) querulents.

All cases come into your office as either physically injured or functionally injured, or a combination of the two. The third class is far more frequent than is generally believed to be the case; simply because an injury does not stick out, it does not follow that this is not an entity. There they are separated by you in their diagnosis of physically injured and functionally injured, sent to your impartials and come back. In that stage I maintain that there comes into the case a psychologic or physiologic evaluation.

As the geologists have a scale of hardness, there may be an *c. v. i.* scale, the measured index of the individual's will to work.—*ergo*, volitional index,—numbers from 1 to 10; 10 the downright malingerer, all others being on the basis of hysterias and psychasthenies, lacking ability to get a grip on themselves for purposes of recovery from injury and return to work.

This evaluation made, your course is changed as to whether you have the functionally injured or the organically injured.

The case of the man who is a problem case it is the function of the vocational director to handle. The medical adviser's function is fulfilled when he has made the diagnosis. He has given the medical opinion as to causal connection and the probable disability, and the active function of restoring the man to the equal scale has been done.

On the other side, in the case of the functionally injured, such a case should be examined as to its *c.v.i.*, its emotional stability, its abulia,—Index of will power, facilitated or diminished mode of release,—and then put in its proper therapeutic channel, according to the last stated factors and its medical diagnosis.

What will we do with our hysterics? It depends upon the form of hysteria. When contractures are present, it must be treated as an organic case and contractures must be put up frequently in the opposite surgical sense to the direction in

which the contracture obtains. Etherization and manipulation often will cure. Tremors will require rest. Certain light forms of hysteria are best treated by work. Major hysteria and hysterical insanity must be treated as insanity *per se*.

The treatment of hysteria depends upon exact diagnosis within the term hysteria. One man may say, "Why, yes, hypnosis is a panacea for all hysterical ills." In many instances the properly directed effort of a sympathetic commissioner may act as a hypnotic agent.

Fear the Basis of Psychasthenia

Dr. Edward B. Lane, of the Adams Nervine Asylum, in Jamaica Plain, has served as impartial physician on many of our cases. The institution with which he is connected is devoted to the care of cases of the psychasthenic variety, and it has been a rule to exclude cases where there was litigation. In their experience, they get practically the same symptoms when there has been no litigation or injury but serious mental strain.

Doctor Lane says that, in his opinion, the very first essential to care for these cases is a sympathetic knowledge of the condition and an understanding of the patient. People who have these, it seems to me, are rare. Each individual case must be known and the various treatments adjusted to it, never forgetting that the condition is undoubtedly a mental one, and it is a state of mind to be relieved rather than any definite lesion.

These patients need sympathy without coddling, and it is the delicate adjustment in this respect that is so difficult to apply. Patients vary so much in their wants and needs that I should despair of laying down any routine treatment. Three or four hysterical patients associated in a ward can demoralize a hospital. What one doesn't think of the other can. Isolation is absolutely essential. Restoration of some of these cases is slow. Doctor Lane says that he finds that it often takes a year before there is recovery. Rarely are recoveries instantaneous; while they may be looked for, they are not to be expected. In the traumatic cases we may find strong mental suggestion of permanent injury. This suggestion sometimes becomes thoroughly fixed and there are subconscious reactions, severe localized pains, hyperesthesia, or anesthesia. It is often easy to divert the patient's attention, but if these symptoms go away they are bound to return on successive days. The more recent the hysterical symptoms, the more quickly may they be dissipated.

Doctor Lane further states that the majority of the cases they see at his institution (psychasthenics) are almost wholly results of the emotion of fear.

Young nurses are quite often prone to say the wrong thing, but such conditions are unavoidable and, if the patients have faith in the medical adviser, they will not be disturbed by these incidents.

Solicitous parents and friends are, in his opinion, more harmful than any errors made by outsiders. Home care is very inadvisable. If a patient can be sent to a place that acquires a reputation for cures without too harsh measures, much can be done. Of course, incidentally in the case of the psychasthenic the minor complaints must be attended to. Simple remedies and placebos must be given and all complaints should be carefully investigated. When patients are satisfied the investigations are careful, they are often willing to accept the judgment of the doctor. If the doctor assumes that there is nothing the matter, the patient knows he has not investigated and will never be satisfied with his findings.

I have not attempted to give a full course in the treatment of this group of cases. There are many books on the occupational and industrial therapy of this important group of cases for those who are interested.

No Specific Treatment Possible

My sole desire at this time is to emphasize the need of calling to the assistance of the boards, men competent to diagnose and advise treatment in this group of cases, and through them to encourage the further standardization of this group of cases. The present method of handling them by exerting constant pressure from the insurance physician, insurance adjuster, or compensation commissioner, is not always a success.

Non-acceptable work forced upon a man or forced at a man tends to develop in him the reaction against work. Forcing a high class man to sweep a floor, may not be treatment; it may be the opposite.

The difficulty of the administration of workmen's compensation by lay boards in this group of cases comes down to the unsurmountable fact that there is no specific treatment for hysteria.

When a case comes to the office, it is not a case coming to the front office looking for information; it is a human being, coming more for relief than for monetary compensation.

NEW YORK'S LOSS IN POPULATION

Owing to the influenza epidemic and the marked decline in the birth rate, the state of New York in the last eighteen months has sustained a loss of approximately 90,000 in population, according to a statement issued recently by Dr. Hermann M. Biggs, state commissioner of health. The decline in the birth rate is due partly to the war, he says and partly to the influenza epidemic. The

birth rates for July and August were 18.7 and 18.8 respectively, the lowest since reliable data have been obtainable.

MEDICAL SERVICE UNDER COMPENSATION LAWS

Certain inadequacies of medical service under the Workmen's Compensation Laws are pointed out in several important papers on general topics read before the Sixth Annual Meeting of the International Association of Industrial Accident Boards and Commissions at Toronto in September. Royal Meeker, in "Minimum Requirements of Compensation Legislation," deplores the ambiguous characterization of certain industries as "hazardous." A disabling accident is a disabling accident wherever it may occur, and Mr. Meeker considers it feasible to provide uniform medical, surgical, and hospital treatment, and money compensation on a uniform scale, taking into account the economic effects of the injury. "Medical service," he says, "must be considered inadequate until provision is made for at least 50 per cent of the cost of industrial accidents to not less than one-half of our working population."

Defects are pointed out in the waiting period for compensation and in the false idea of economy in the time and money limitations of medical service. When left to the courts administration is always cumbersome and unsatisfactory. He emphasizes the real need of full compilation of statistical information.

John Mitchell, chairman of the New York State Commission, emphasizes the shortsighted policy in limiting the time and money outlay in medical service. He cites a case in which a \$200 operation was effectual in preventing a permanent disability. "Not only cure, but rehabilitation, should be the object sought," says Mr. Mitchell. He considers that the fundamental principles of protection to the workmen entered upon in New York involve the necessity for insurance.

Carl Hookstadt, of the United States Bureau of Labor Statistics, urges the intelligent study of data on the relative merits of different types of compensation and insurance. He considers the lack of proper statistics a lamentable weakness which must be remedied if just awards are to be made. He characterizes the provisions for medical service as shamefully inadequate and thinks effort should be concentrated on reducing the number of permanent disability cases.

Compensation law administration is especially complex as relates to medical service, according to Jeremiah F. Connor, who points out the inadequacy of reports and a defect in that the selection of the physician is left to the insurance company. A typical instance is given where this practice was inimical to the contest of the case. The injured man was seen by thirty-two physicians, not one of whom regarded his relations with the patient as confidential, not one of whom would be "his witness." "A system which permits your physician to 'cure your hurts but kill your ease' ought to be removed," says Mr. Connor.

Under the "Collective Liability System" of Ontario, Samuel Price considers there is no constraint to favor either party. By this system the physician is in effect an officer of the Board and, as such, is under obligation to perform his duty without fear or favor. This system also reduces controversy in choice of physician. Mr. Price considers the choice of the physician as of prime importance, and the ambulance-chasing doctor as hampering to good service as the ambulance-chasing lawyer.

THE SECURING OF PROPER MEDICAL SERVICE FOR INJURED PERSONS

BY JOHN W. TRASK, SURGEON, UNITED STATES PUBLIC HEALTH SERVICE, MEDICAL DIRECTOR, UNITED STATES EMPLOYEES' COMPENSATION COMMISSION*

THE underlying purpose of compensation legislation is to relieve the injured employee of the loss and burden resulting from industrial injuries. The loss in these injuries is essentially one of physical damage. Physical restoration is the one means of actually repairing the damage and restoring the loss. Loss of wages and compensation therefor are in a measure incidental. This is true notwithstanding the fact that legislation began at the other end of the problem, first supplying an amount equivalent to part pay for the employee during the period or a part of the period of disability, ignoring largely the question of physical restoration. The granting, however, of compensation for time lost was essentially an acknowledgment that it was not proper to place the burden of an industrial injury upon the shoulders of the employee. This being accepted, it follows that the employee should be restored in so far as possible to his previous physical condition. Physical restoration is accomplished through medical treatment in its broad sense. To be effective it must be competent and adequate.

Not All Physicians Competent to Handle Serious Injury Cases

Most of the cases coming before the United States Employees' Compensation Commission are surgical in nature. The whole question of adequate medical service, in so far as the experience of the Commission is concerned, depends upon getting the injured employee under the care of a well trained, competent surgeon who possesses if possible a not unpleasant personality.

In years past there have been in existence throughout the country many medical schools with limited facilities, giving very inadequate

The question of satisfactory medical care for injury cases seems to resolve itself into ascertaining who are competent, well trained surgeons, with the necessary temperamental qualifications, and where they are located, and then placing the injury cases under their care. The experience of the United States Employees' Compensation Commission has been that the whole problem depends upon the selection of properly qualified surgeons who will conscientiously do whatever is possible toward the physical restoration of their patient. This secures the maximum benefit to the injured at a minimum of cost to the Government.

training. Large numbers of the graduates of these schools are at present engaged in the practice of medicine. They are frequently competent neither as physicians nor surgeons, as we understand these terms.

It is also true that the physician engaged in ordinary general practice, either in the city or in the small town or country, usually sees comparatively few injury cases. Even though he is a graduate of what is

recognized to be a good medical school and though he have a considerable general practice, he does not usually have the opportunity of becoming proficient in the handling of cases of serious injury. His practice includes mainly patients affected with sickness and disease. His experience in the handling of fractures, and often, too, in the handling of infections of the extremities, is limited. He will probably see or have charge of but a few of these cases in the course of a year, often a very few. It is, therefore, more a matter of justifiable surprise when one finds a physician engaged in general practice who handles these cases efficiently and in such a way as to secure the best results.

The impression prevails somewhat commonly, although perhaps not so commonly as a number of years ago, that if you are sick or injured you will get that magic drug or application which will cure you by going to a person, any person, who practises medicine or is known as a "doctor." This may have been more or less true, or at least have been accompanied with less disastrous results, in localities and under conditions when poultices, harmless lotions, or at most bleeding, were the possible extent of the treatment; under conditions when surgery had not developed to the stage it has at the present time, when the practice of orthopedic surgery was limited and crude compared with what it is to-day, before the discovery of the x-ray and its

*Read at the Sixth Annual Meeting of the International Association of Industrial Accident Boards and Commissions, Toronto, Canada, September 23-26, 1919.

possibilities; and at a time when the highly trained medical man was so rare as to be a factor beyond ordinary consideration.

Sending an injured person to a "doctor" is not necessarily furnishing medical treatment; in fact, it may have the very opposite effect, because, as long as the injured person is under the care of an untrained medical man, the chance of his getting under the care of a well trained physician is diminished.

Right Personality of Prime Importance

But in the proper treatment of beneficiaries of compensation acts more is needed than merely a well trained, experienced surgeon or physician. The medical man must have a proper point of view. He must be conscientious and have a desire to do all that is possible for his patient. He must be temperamentally constituted so that he will be agreeable to the patient, and the patient will have a feeling that he is receiving adequate service. A competent man, if he is not agreeable to the patient, or if he does not give the patient the impression of giving adequate service, will not answer the purpose. However, the sincere, competent surgeon, almost without exception, does impart this impression.

The question of satisfactory medical care for injury cases then would seem to resolve itself into ascertaining who the competent, well trained surgeons, with the necessary temperamental qualifications, are and where located, and of placing the injury cases in so far as possible under their supervision and care.

The matter of hospitals gives little concern, for a good physician will give adequate service anywhere, and a physician unqualified by training or temperament will not give adequate service in the most expensively constructed or lavishly equipped institution. Well equipped hospitals, however, are a distinct advantage and make the work easier.

To secure the best possible results, and when dealing with the injuries of others the best possible results constitute the minimum of responsibility, advantage needs to be taken of the special training of special men; that is, of the so called specialists. Eye injuries, wherever practicable, will be treated by trained ophthalmologists, and no physician or surgeon temperamentally qualified for the care or supervision of compensation cases would think of himself treating an eye injury if a competent ophthalmologist were at hand.

Bone and joint injuries will be cared for only by surgeons with training and experience in such injuries, or they will be under the care of com-

petent and experienced orthopedic surgeons, and in this day x-ray control of such injuries is a necessity. Adequate x-ray control is an economy in bone injuries and in suspected bone injuries. The competent surgeon will insist upon it if available. One will no more be guilty of succumbing to the fallacy that all surgeons are equally competent to do all kinds of surgical work than one will succumb to the more general fallacy that every "doctor" is a competently trained and experienced physician.

The Specialist Called For

How to bring about the desired results of securing the service of competent physicians and surgeons only is by no means a simple matter. The great and abiding faith of the average person in his family physician is not a thing easily set aside. It is one of the chief obstacles in the way of furnishing adequate and efficient treatment in compensation cases. This fidelity of the average individual is natural and the reasons for it are readily understood. A physician is the family physician, usually because in his relation to the patient he has been agreeable. He has endeavored to show a sincerity and interest in his cases. He has realized that his success depended upon his convincing his patients of his sincerity and interest, and of establishing in their minds a degree of confidence. With few exceptions, patients will not submit to treatment by physicians or surgeons who do not treat them in such a manner as to show human interest in the individual as well as professional interest in the case. In so far, therefore, as the furnishing of proper treatment under the provisions of compensation acts is concerned, only those surgeons are generally usable who are temperamentally so constituted that they will show this human interest and impress favorably the beneficiaries.

The training, experience, and competency of the surgeon are qualifications which will be required by the responsible commission because the commission knows their importance and necessity. The human interest and not unagreeable personality are attributes which the injured person will insist upon, and it is perhaps proper that he should. He often does not understand the excellence of the medical treatment furnished. It is the personal relation which impresses him most.

The problem of the United States Employees' Compensation Commission in providing treatment has been somewhat different from the problem offered to the compensation commissions of the states. The beneficiaries of the Federal Commission reside in all of the states. Facilities for treatment, however, are not limited to the states

in which the cases occur. The problem is in large part different from that of the commissions in the states with the more dense populations, where the trained medical men are relatively numerous and more widely distributed, and in which the distances to the medical facilities are not great, as they frequently are in the less populous states. On the other hand, if the beneficiary can be moved there is nothing to prevent him being sent from Texas to Chicago or from Florida to New York for treatment if need be.

The Federal Compensation Act provides for reasonable medical and surgical service to its beneficiaries. As only that medical and surgical service is reasonable which gives promise of being effective in bringing about restoration of the injured, the Commission is under obligation to furnish.

The Federal Act also provides that the medical service shall be furnished for a reasonable time. A reasonable time or period over which treatment shall be extended is necessarily that period during which treatment is needed. Treatment for a lesser time or a greater time would be unreasonable.

Medical Facilities Used

The Federal law further provides that this reasonable medical and hospital service shall be furnished by United States medical officers and hospitals where practicable, but that where it is not practicable to use United States medical officers and hospitals the service shall be furnished by physicians and hospitals designated and paid by the commission. The Commission has, in compliance with the provisions of the law, made use of United States medical officers and hospitals wherever they were in a position to furnish the necessary treatment. It has been able, particularly, to make use of the many hospitals and relief stations of the United States Public Health Service, this service having made its hospitals and dispensaries available to the beneficiaries of the commission wherever their facilities warranted and their use was practicable. The Medical Corps of the Army has maintained dispensaries for the treatment of beneficiaries of the Compensation Act at the arsenals and some of the supply depots of the War Department. The Surgeon General of the Navy has equipped and maintained dispensaries at the Navy Yards.

The employees of the Government, however, are at work in all parts of the country, from the Atlantic to the Pacific, and from the Canadian to the Mexican boundary. In addition to the hundred thousand employees at the seat of Government in the District of Columbia there are the

employees of the various executive departments throughout the country—the Customs Service and mints of the Treasury Department; the Immigration Service of the Department of Labor; the Forest Service, Weather Bureau, Bureau of Animal Industry, and other bureaus under the Agriculture Department; the Reclamation Service, Bureau of Mines, Coast and Geodetic Survey, and other offices of the Interior Department; the Engineer Corps engaged in river and harbor work; the arsenals of the War Department and the Navy Yards of the Navy Department (the arsenals and navy yards being large industrial establishments), and, finally, the many employees of the Post Office Department with its post offices in every city and town and its thousands of rural letter carriers, making in all several hundreds of thousands of Federal employees.

Injury cases invariably require immediate treatment. Many injuries are slight, and sending the injured a distance for medical treatment would not be warranted. Many injuries are too serious to make transportation to a distance advisable. As the number and distribution of United States hospitals and dispensaries are limited, the commission has necessarily had to make extensive use of the provision of the law as regards the designation of physicians.

Surgeons Designated

The policy has been followed of designating, particularly in localities where there are numbers of Government employees and in which there are no United States hospitals or dispensaries, or in which these facilities need to be supplemented, surgeons of ample training and experience, of mature age, and of good reputation locally. The Commission has made about 2,000 designations of this kind. The number will be added to as the commission is able to find men with the necessary professional and temperamental qualifications. In the meantime, in the localities in which there are no United States hospitals and in which designations have not been made, injured employees secure treatment from physicians of their own choice, and the Commission will pay in these cases charges commensurate to the service rendered.

For a time, in many places hospitals were designated and not physicians, in the belief that the hospital would represent a group of medical specialists and that of the cases sent to them those requiring the general surgeon would receive his services; those requiring the ophthalmologist, the dermatologist, or orthopedic surgeon, would receive their respective care, and that the necessary pathologic, bacteriologic and roentgenologic services would be available. The Commission early

found, however, that cases sent to hospitals in this way frequently received scant and inadequate treatment. Often they seemed to be placed under the care of an intern, or at times under the care of a practising physician without particular qualifications. They did not often seem to come under the care of a responsible attending surgeon.

Economy in Skilled Service

The Commission, therefore, discontinued this practice, and is requiring that cases in other than Government hospitals shall be placed under the immediate care of a designated physician, where designations have been made. Anything but the most efficient treatment is a serious drain upon the compensation fund, inasmuch as the Commission has to pay part of their wages to the injured until they are restored and returned to work. The better the medical service, the less the compensation expense; also, the better the medical service, the less the loss to the employee.

The commission started out to furnish only ward service for its cases in hospitals, excepting in those instances in which private rooms were necessary for the proper treatment of the case. It has found, however, considerable difficulty in adhering strictly to this policy, as the wards in many hospitals do not furnish a standard of service to which the commission feels justified in submitting its beneficiaries.

Responsibility of Medical Attendant

As regards the responsibilities of the medical attendant, the commission has explained to its designated surgeons that its chief desire is to secure adequate service for the injured; that where the service of a specialist is indicated such service should be obtained; that in bone or joint injuries or in suspected injuries of this kind; the Commission expects adequate x-ray examination and control; that the service of neurologists, pathologists, or other specialists should be secured when necessary; that the purpose of the commission is to make the most satisfactory restoration of the injured in the quickest possible time.

The plan is working out very satisfactorily. Of course, many injuries occur in out of the way places and under conditions where the employee has to be cared for by any physician who is available, and often the results are not what the Commission would wish. It is difficult, however, to see how this can be prevented.

In conclusion, to repeat, the experience of the Federal Commission has been that the whole question of adequate medical service to its beneficiaries depends upon getting the injured employee under

the care of a well trained, competent surgeon who will conscientiously do whatever is possible in the physical restoration of his patient. This secures the maximum of benefit to the injured at a minimum of cost to the Government.

MUSCULAR TONUS AND FATIGUE

Physiologic studies for the purpose of determining cumulative fatigue are reported in reprint No. 543, *Public Health Reports*, by A. H. Ryan, associate physiologist, United States Public Health Service. The amount of tension required to produce a given amount of extension of a group of muscles under controlled conditions was taken as the index of muscle tonus. A decrease in the tonus was noted in the evening as compared with the morning condition. This was more pronounced when the subject was losing sleep. The morning tonus was lower and the average tonus for the day was less than on days following a good night's sleep.

Evidence was thus obtained of cumulative fatigue effects. Sleep at night or during the day was usually followed by a considerable increase in tonus. Strenuous work of short duration was usually followed by an immediate decrease in tonus. Psychic influences (excitement) seemed occasionally to produce an increase in tonus, although fatigue-producing conditions were recorded in the history. In subjects doing relatively light work and obtaining plenty of sleep the tonus varied during the day, the evening tonus being frequently greater than that observed in the morning.

NEW YORK STATE LIGHTING CODE

In a paper read before the Thirteenth Annual Convention of the Illuminating Engineers Society in Chicago in October, John H. Vogt, chemical engineer, Bureau of Inspection, New York State Industrial Commission, traces the evolution of New York's Lighting Code.

In order to know what intensities of light were being furnished in the numerous factories represented, in halls, stairways, etc., throughout the state, and the opinions of the workers as well as of trained inspectors, a large amount of data was collected and tabulated as the basis for formulating the code.

Rules are laid down for minimum intensities. These are subject to amendment and do not become mandatory until July, 1920.

Section "D" provides for the shading of lamps to prevent unnecessary strain on the eyes of the workers but nothing is referred to in the law relating to glare from bright surfaces. "Glare without question has been responsible for more eye trouble than any other factor caused by artificial lighting."

Section "E," relating to distribution of light, provides for the elimination of shadows and of excessively sharp contrasts.

Emergency lighting is provided for use in sudden failure of lighting system.

Prior to the adoption of this code the factory inspector could go no farther than the use of his own judgment in concluding whether a given area was properly or sufficiently lighted. Under the new code a series of tests can be made by the Division of Industrial Hygiene, of the Bureau of Inspection.

There still remains much work to bring up factory lighting to the code rule standard which should be pushed until this important feature of factory inspection is accomplished.

INFECTIONS OF THE UPPER EXTREMITIES

BY P. A. BENDIXEN, S.B., M.D., F.A.C.S., DAVENPORT, IOWA

IN presenting this subject it is not the intention of the author to burden this paper with statistics, or give any definite set of rules for treatment, but his aim will be to give a general survey as to the causes and treatment, and to appeal to you as physicians, and representatives of the Industrial Accident Boards and Commissions to give more detailed attention to the management of the infected upper extremity.

How many of us ever stop and consider the wonderful mechanism of the human arm, wrist, and hand with its powerful muscles, its slender tendons, the multitude of delicate movements possible, its flexibility, its adaptability, and its acute sensibility? And yet how quickly, how easily, how rapidly is this beautiful piece of human machinery ruined and put out of commission by the carelessness and recklessness of the individual himself, and by the introduction of a few germs into its mechanism.

Take Care of Complicated Mechanism

Realizing as we do the wonderful mechanism involved, it then becomes necessary for all of us to try and preserve this wonderful machine which is so indispensable to all productive labor, to all economic welfare, to all progress in science, and to the enjoyment as well as to the maintenance of life itself. Yet with a full knowledge and appreciation of this wonderful machine we allow it to go to destruction on account of neglect either on the part of the individual himself, his employer, or by an unskilled and untrained surgeon.

Does the infected upper extremity get the pains-taking, intelligent treatment that its economic value demands? I believe that it does not. There is probably no surgical condition that is of more importance, that requires such careful and intelligent treatment as that of infections of the upper extremity. To the workman the complete or incomplete loss of function, or the amputation of an arm, a hand, or a finger, often means the loss of his occupation, a change of occupation, or final pauperism.

An external trauma breaks the continuity of the skin, permitting the entrance of bacteria, and making a fertile media, for the growth of the germ. There is no question but that the

staphylococci and streptococci are the most common infective agents, yet other bacteria may gain entrance, namely, the gas bacillus, the tetanus, the anthrax, etc.

Beside the direct causes of these infections we must consider the outside influences which favor these infections. The individual himself may at first consider his injury trivial and give it no attention at all, or he may apply a contaminated handkerchief, or a chew of tobacco which is thoroughly saturated with infected saliva.

The oils in which he works may be the infecting agents. A number of instances have been recorded in which the oil was highly contaminated by the common practice of the employees spitting in the oils.

The employer may be responsible for these infections, by employing incompetent first aiders or an inexperienced surgeon. An inexperienced industrial surgeon came under the writer's observation during the recent war. A physician who came from a small country town was placed in charge of a civilian hospital which was taking care of about 10,000 to 12,000 men. As the injured men came from the shops, dirty and greasy, he immediately became alarmed and gave the wound and the surrounding areas thorough cleansing with a solution of kerosene and benzin to remove the dirt. What was the results of this practice? A wound which was practically sterile, washed out by free bleeding, was contaminated by the freeing of the infecting agents about the wound which drained directly into it. From this same institution, the percentage of infections was extremely high and in a number of instances amputation of the extremity became necessary.

Hydrogen Peroxid Cause of Infection

I am of the firm belief that the indiscriminate use of hydrogen peroxid, which is so commonly used amongst the laymen, is one of the frequent adjunct causes of infections. Why does hydrogen peroxid do harm? For this reason: When it is introduced into a fresh wound gaseous oxygen is liberated, which in turn forces the bacteria under pressure into the healthy as well as into the traumatized tissues, and thus produces infections which otherwise would not have occurred.

As time will not permit a detailed description of infections of the upper extremity, they are briefly divided into various groups.

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1. The infections of the distal phalanges, namely: felon, paronychia, subepithelial abscesses.
2. Collar button abscess, shirt stud abscess, frog felon, or, as the French describe it, *en bouton de chemise*.
3. Carbuncular infections on the hand, wrist, and arm.
4. The grave infections of the hand and arms. (*a*) lymphangitis, which may be either superficial or deep; (*b*) tenosynovitis; (*c*) fascial space infection. The pus in these fascial space infections may be localized in the following five well defined spaces: middle palmar space, thenar space; hypothenar space; dorsal subcutaneous space; and subaponeurotic space.



Case No. 1. Gangrenous condition developing in a neglected wound from a slight puncture with a splinter of wood, and resulting in amputation of the index finger.

5. Infections of the arm may be divided into those involving (*a*) the forearm, (*b*) the upper arm with the epitrochlear and axillary region, and (*c*) subelavicular and shoulder involvement.

All of the types of acute septic infections pro-

duce pain in the affected part, with more or less swelling. The location of the greatest amount of swelling does not indicate the location of the pus; quite to the contrary, for the excessive swelling comes in those areas where there is the largest amount of cellular tissue, i.e., on the dorsum of the hand, while in nine cases out of ten the pus is on the flexor side.

The site of the greatest tenderness is of marked importance in the location of the pus.

In the subcutaneous type, which is the most frequent, the involved area is markedly swollen, red, tender, and fluctuating when pus is present; lymphangitis and neighboring lymphadenitis are frequently present, especially in the streptococci infections and in those in which there is no free drainage.

In tenosynovitis there is severe deep tenderness over the sheath of the tendon involved, and the patient does not move the affected extremity on account of the great amount of pain on the slightest movement of the tendon.

In osteomyelitis and septic arthritis of the joints there is a very hard and large swelling, much greater than in any of the other types of infection. The tenderness and swelling are deep seated; in other words, they do not involve the subcutaneous tissue alone, but extend to the deep structures. When osteomyelitis begins, there is a great deal of pain, which subsides in the course of four to seven days, but the swelling persists and pus continues to drain from the wound. An x-ray picture will show the necrotic bone.

The general systemic symptoms vary considerably, depending largely upon the location and virulence of the bacteria, giving no distinct aid in the diagnosis. Personally I have seen ulnar and radial-bursae involvement with practically no systemic symptoms.

The diagnosis in most of our infective cases can be made, (1) by the localized area of tenderness, (2) by the pain elicited by passive movements of the extremity, (3) on the location of pus by fluctuation, and (4) on the history or presence of a wound, which is probably the initial source of the infection.

Prognosis in Such Infections

The prognosis of these infected cases depends upon many outside conditions, but it is the author's firm belief that 90 per cent of the arms, hands, and fingers could be saved by the exercise of proper care and judgment in the handling and management of these cases.

The statistics in this paper are based on the personal observation of the author during the years 1917 and 1918. During this period 1,696

injuries to the upper extremity were treated, 825 involving the right side, and 871 the left side. Out of this number 232 came to him infected, 138 on the right side, and 94 on the left side. You will note the large percentage of infected cases referred. In the history of every case of infection the individual had either treated himself, or had been treated by an over-anxious or incompetent first aider. The infections that were referred had existed from three days to four weeks.

The average time lost by the employe was 11 $\frac{1}{2}$ days, to say nothing about his pain, suffering, and partial disability.

What did the employment of incompetent medical services and the individual self-neglect mean to the employer in the above statistics? It in-

left. The average time lost was 10 $\frac{1}{4}$ days, or the loss of 41 days in 1,464 cases.

Reports of Typical Cases

To show the results of self-treatment and incompetent medical aid, two well illustrated cases are cited.

Case No. I.—J. B., a locomotive fire builder, came to my service on May 27, 1919, with a severely infected right index finger involving the thenar space of the right hand. The patient claimed that five or six days prior to date of examination he was handling some wood to start a fire and while doing same he accidentally ran a splinter of wood into right index finger, palmar side, distal end. He removed the splinter himself, continued work, and did not report the accident. He claimed that the following day he had pain in his finger and that he had continuous pain for five or six days until it became so severe that he requested medical treatment. The photograph shows the condition of the hand at the time of the first examination.

The patient was sent to the hospital. Free incisions were made, and drainage instituted, but in spite of all radical treatment gangrene developed and it was necessary to remove the index finger six days after he reported for treatment.

There is no question in my mind but that this finger could have been saved had the accident been reported. The patient could have avoided the suffering, and the employer could have had his service.

Case No. II.—H. B., a football player, received a slight bruise to his right forearm, lower third. The arm pained him from the time of the accident and a physician was consulted immediately. On account of improper management by the attending physician at the beginning of the case, the arm gradually became worse until an osteomyelitis of the radial bone developed. His symptoms were not recognized and he was treated for other complications. Free incisions were made, and pus drained. It will be noted from the x-ray plate that the radius is considerably increased from its normal size, still showing some signs of the osteomyelitis with ankylosis of the carpal bones at the wrist; supination and pronation are limited, fingers and hand are stiff. The patient has lost about 75 per cent function of his arm.

There is no question but that the function of this arm could have been saved had proper surgical attention been rendered in the beginning of the case.

Prophylactic Treatment

Great care should be exercised in the first aid treatment. Scrubbing of the wound or surrounding areas should not only be avoided but condemned. The first aid treatment should consist of the application of tincture of iodin in and about the wound. In the presence of a considerable amount of dirt and grease in the wound it may be removed by a sharp curette or by trimming the edges with a scalpel or scissors. In punctured wound, especially those produced by nails, the use of a sharp pointed scissor will prove to be the most satisfactory. A complete débridement operation is done from the top of the wound to the dependent area. All foreign material must be removed.

The foremen in the shops should be instructed to insist that every injured employee, regardless as to how trivial the injury may be, report to the first aid station *at once*.

The employer should call attention of the employee either by posters, literature, lantern slides,



Case No. 2.—Improper management of an insignificant injury to the lower third of the right forearm in this case resulted in an osteomyelitis which left the radial bone greatly thickened, supination and pronation limited, fingers stiff, the function being reduced about 75 per cent.

volved the loss of 2,668 working days, to say nothing of what it meant to the employe financially or to their families.

The number of cases that became infected which were treated within the first twenty-four hours were 4, 3 on the right side, and 1 on the

moving pictures, or lectures to the grave dangers and results following the neglect of minor injuries. Self-treatment should be condemned.

After an infection has once been established the affected extremity should be placed at rest by proper fixation splints as it is a well recognized fact that the lymphatic streams are aided materially in their return flow by muscular action. In severe cases rest in bed should be insisted upon.

The systemic use of drugs, such as nucleic acid, etc., to increase leukocytosis has never proved to be of great benefit.

Passive hyperemia as suggested by Bier has not produced the desired results claimed for it. Suction cups may be used in cases of localized abscesses which do not drain freely.

Hot moist dressings, such as saturated boric acid solution, potassium permanganate, alcohol, bichlorid, etc., have been very beneficial and are indicated for reasons which will be mentioned later.

Prophylactic incisions and the common habit of pressing and squeezing the wounds should not only be practised to a minimum, but condemned.

Methods of Radical Treatment

The attending surgeon must have a thorough knowledge of the anatomical structures involved, the location of the trouble, and referring to the well applied saying of the late Dr. J. B. Murphy:

"The blade of the knife is not sensed with vision and to thrust a blind knife, blindly into a human extremity is nothing if not criminal, and, therefore, every acute deep seated infection of the extremity should be treated by exploratory dissection under anesthesia and anemia."

There is no question but that the permanent loss of function may be due more to the surgeon's knife than to the infection itself.

The underlying principle is to make an incision at the proper place, large enough to allow proper drainage and the introduction of drains, preferably gutta-percha. A general anesthesia should be given because complete relaxation is required to do skillful work. Complete anemia is obtained by the use of the constrictor. All operative procedures should be carried out carefully, methodically, and along certain lines.

After the drain has been inserted, hot moist dressings are applied. When no drain is inserted and dry dressings applied, the edges of the wound become edematous and exude serum, which coagulates and seals up the opening. Hot moist dressings should be applied as they prevent the coagulum. An important point to which I wish to call your attention is the flow of serum from the wound. Wright maintains that as long as serum

is permitted to exude from an infected wound the condition is favorable. The serum bathes the wound and brings the lymph to the surface. In the more severe cases of infections the Carrel-Dakin, Dichloramine-T, or modifications thereof, may prove to be of great service in clearing up the infection.

In many cases that are referred to the surgeon the destruction has already advanced to a state where it is a question of trying to save as much of the limb as possible provided it can be made useful and functioning. When we meet with destruction of this kind the utmost care should be instituted. All necrotic tissues should be removed and should not be allowed to slough out. Proper massage and passive motion should be given in all cases where they are indicated. In the treatment of reconstructive disabilities, especially when the joints are involved, accurate and suitable records should be made as to the progress of the case. The chart used by the author has been patterned after the free-hand drawing used at the Clinic for Functional Re-education. The charts that are used at the Hart House, Toronto, can also be highly recommended if they are used in conjunction with Prof. E. A. Botts' series of mechanotherapy apparatus. In cases in which there has been a tendon destruction, tendon transplantation may be resorted to. Various operative procedures have been recommended and the method used will depend largely upon the conditions present, and upon the skill and experience of the operator.

General Systemic Treatment

General systematic treatment has its important place. This is mainly by early and thorough evacuation of the bowels, the forcing of large amounts of fluids, particularly water, the avoidance of alcohol, the eating of nourishing foods, and avoidance of any kind of fatigue. The whole point in treating these cases is not to omit any little detail which might help in any small way in these most vitally important cases.

Conclusions

In conclusion the following points are to be emphasized:

- (1) The wonderful mechanism of the human arm and hand and what little consideration and thought is given to it.
- (2) The importance of considering septic hand from an economic point of view from the very start of the infection until the man has resumed work.
- (3) The great importance of immobilization and rest treatment.

(4) A thorough knowledge on the part of the surgeon of the anatomical relationship of the extremity.

(5) The early establishment of passive motion and massage with record showing improvement.

(6) That tendon involvement can usually be

wholly prevented by early and proper treatment.

(7) That early plastic operation and amputation are desirable after all other conservative methods have failed.

(8) Last, but not least, the old slogan, "No matter how slight the accident, report it."

DISABILITIES AS AGGRAVATED BY PREEXISTING CONDITIONS

BY JOHN WILSON MOWELL, M.D., CHAIRMAN OF THE STATE MEDICAL AID BOARD OF THE STATE OF WASHINGTON, OLYMPIA, WASH.*

I AM particularly pleased that Dr. Royal Meeker should have assigned this subject to me for my paper, as it is a subject that early attracted my interest when I was appointed medical adviser to the Washington State Industrial Insurance Commission eight years ago. In the intervening time "disabilities aggravated by previous existing conditions" have been almost daily referred to me for a decision, and I am glad to be now placed in position to give the results of my observation, assembled though it is in the brief space made necessary by the time allotted this paper.

You will understand that I am confining my remarks entirely to the conditions that have passed under my personal observation during these eight years, and if I have made omissions or failed to give emphasis to certain special conditions which may arise in your minds, it is because of this fact. I am not delivering an assembling paper, but am dealing entirely with conditions that I have reviewed, and the conclusions here presented are those of my own deduction as the result of my own experiences as I now recall them.

Occupational Diseases Excluded

In calling attention to some of the conditions in which we find workmen following gainful occupations, which complicate their condition when accidents which bring them under the com-

A HYPOTHESIS FOR ADJUSTMENT OF DISABILITY CLAIMS

How can preexisting conditions be known and understood by both parties concerned—the employer and injured employee—in the adjustment of claims for disability? Before a compensation act can be administered so that it will be just to both and wholly impartial, it will be necessary to have in the office of the insurance commission a record of the physical examination of every workman, and to require that a general examination be made at stated intervals and a record of same filed with the commission. Then it will be possible to separate conditions that existed before the injury from the accident itself.

pensation act are sustained, I will confine myself to the conditions that have arisen, excluding the diseases generally known as occupational diseases, which are many, but are excluded by the Washington Act.

The handicapped workmen are very numerous when you consider them as a class and they come under your observation as medical adviser to an industrial board. This has been forcibly empha-

sized by the war draft and was one of the problems with which the advisory board had to contend.

For convenience we have divided these conditions into three classes: (1) congenital defects; (2) previous injury leaving a handicap; (3) disease or condition existing in the individual prior to accident.

Congenital Defects Affect Rating

Under the heading "congenital defects" are included all forms of defective vision complicated in the workman who receives an injury to the eye. He attributes all of his reduction in vision to the accident. Not having previous record of the individual's eye, it becomes impossible for the examining surgeon to state definitely just how much reduction of vision is the result of his accident and what his standard of vision was previous to the accident. It is often complicated with astigmatism, strabismus, or a congenital or acquired nystagmus that are not easily separable. This leads almost necessarily to a rating for disability as found.

*Read before the Sixth Annual Meeting of the International Association of Industrial Accident Boards and Commissions, Toronto, September 23-26, 1919.

Then we encounter defects in hearing which seem to be clearly of long standing and in all probability not increased by the accident. The workman, however, actually has an injury to the ear and we are confronted with the same condition as in the case of injury to a defective eye.

We also meet with defects in development of the skeleton and resulting deformities. When one of these individuals sustains a fracture or some injury that leaves permanent partial disability as a result it is a great deal more serious than it would be in a perfectly normal individual, and the handicap is greater.

We also have what is known as "drop heart," where the normal "field of response" for the individual is far below the average. So we are apt to meet a condition which they attribute to their accident, when clearly the accident had nothing to do with it.

The Ubiquitous Hernia

The patulous inguinal canal is a serious hazard to a workman, as it is the cause of 99 per cent of the so-called hernias from accident. It is so well known that it needs no discussion here that a true traumatic hernia is practically unknown, but hernias that come as a result of strain, lifting, etc., have been long in their forming, and their actual appearance through the external ring at that particular time called attention to it. You will often get a history of stinging pain in the inguinal region extending back for months or years, but the courts are prone to hold that a hernia that makes its descent while the man is engaged in his usual occupation, associated with some lifting or strain at the time, is accidental. We have had considerable trouble arising from undescended testicles where the individual claimed injury and the latter condition was found.

We also have had some experience with a unilateral kidney, where examination of the individual receiving an injury revealed the fact that he had but one kidney, and that one not normal, damaged from accident presumably, making the case hard to dispose of in an equitable way.

Then we have been confronted with multiple fingers and toes, and the question arises whether the loss of the supernumerary finger or toe is really a handicap and upon what basis it should be adjusted.

This brings us down to the individual who has inherited an unstable nervous system with its many angles and complications. Accident leads to anxiety and apprehensions in the individual, which are not well founded but largely imaginary. If such an individual has an accident, he

becomes a rather troublesome claimant, and to satisfy him is usually out of the question.

Under this heading come all the individuals who have suffered injuries and who have permanent partial disabilities, or are considered as having such under the compensation act, that have left them subnormal and very much in the same position as the congenital defect, with this exception, however, that we are in a better position to separate the former handicap from the present condition, as it is much more apt to be apparent upon examination and there may be a record of previous condition.

Previous Conditions or Disease

First, we have those relating to the eye. We have seen hemeralopia (day blindness), nyctalopia (night blindness), and psychic blindness in individuals claiming these conditions following bodily injury that could have no connection whatever with their condition. They were either congenital or acquired.

We have seen the following conditions in individuals who have claimed that they had some foreign body in the eye, such as cinder, dirt, or even cottonseed oil splashed in the eye: optic atrophy, choroiditis, iridocyclitis, cataract, corneal ulcer, interstitial keratitis, glaucoma, trachoma, panus, ectropion, trichiasis, distichia, chalazion. A great number have claimed accident caused ptosis, associated with paralysis of the facial nerve, that was not brought about by accident but was due to exposure. Then we have the individual who is subject to migraine and who is often honest in his opinion but claims the attacks are much closer together and more severe than they were before the accident.

We have deafness caused from otitis media or chronic pharyngitis, occlusion of eustachium, and otosclerosis, associated with an injury to the head or ear where it is impossible to say what was condition of the individual previous to the accident. A very large percentage of them insist that their present condition is all due to the accident when from a medical point of view it is quite clear that very little, if any, of the condition is the result of the accident. We also have labyrinthine disease, which is very hard to separate from the condition that the man may have following a fracture of the base of the skull. Not having previous examination it becomes necessary to attribute all of his trouble to the accident.

Static Abnormalities

An injury to the spinal column that of itself is of minor importance, because the gross lesions are easy to separate, is often complicated by one

of the following conditions: chronic torticollis, scoliosis, lordosis, kyphosis, atrophic and hypertrophic arthritis, sacro-iliac relaxation, calcification of ligaments, and chronic lumbago. Then in slight injuries to the soft parts we often find them associated with chronic rheumatic bursitis, an injury to the hand or arm associated with a subacromial or subdeltoid bursitis, or the subcutaneous bursa of the acromion or subcoracoid. In injuries in other regions we find the subgluteal bursa involved and often the prepatellar bursa, the workmen claiming an injury when it is not clearly definite that there was one. The bursa over the olecranon is often involved in miners and other workmen, where it is clearly occupational. Quite frequently we find the subcalcaneal bursa involved.

Chronic Joint Conditions

We are often confronted with a chronic dislocation of the shoulder. This comes up as an accident when in reality there was no real accident in connection with it. These joints have been in the "habit" of slipping out for years, and the joint becomes so relaxed that it slips out even in normal movements, and claim for same comes before the commission as an accident.

Minor injuries to the knee from strain or twist are claimed, and we find a fibrosis of joint or a synovitis that is undoubtedly a chronic condition which makes the joint more susceptible to slight injury. It is very common to find osteocartilaginous joint bodies in the knee, elbow, or shoulder—more commonly in the knee—which become aggravated or set up an acute condition that causes the workman to make a claim for compensation. In fibrous osteitis we get a claim as an accident when it begins to give the individual trouble; osteomalacia, which is occasionally the cause of pathological fracture and which is not connected with any accident other than the mere fact that the bone broke. One case occurred with us in the last few months in which the man firing a donkey engine turned around to pick up some wood and sustained a fracture at the middle third of the femur. In such cases normal healing is retarded, as a rule, resulting in considerable deformity.

Foot Troubles a Problem

Pre-existing conditions in feet usually present quite a problem. An individual who has weak arches or flat feet receives an injury which puts him in bed, lowers his vitality, gives him a general muscular weakness; when he recovers sufficiently to be up, he is very apt to begin to complain of pain in his feet and in the calves of his

legs. He attributes this to his injury, and although he had a broken arch prior to his accident, which is often demonstrated by his shoes, he will contend that the condition is much worse and that he did not have the pain before. In fact, his feet may be worse, although they were not injured. We often find that a man who has a weakened transverse arch or a broken transverse arch in connection with a broken metatarsal has a very painful foot and may be more disabling than a weakened longitudinal arch. The man who has hammer toes and who has an injury in the region of his foot usually insists that that condition gave him no trouble until after the accident. The individual having bunions, hallux valgus, hallux dolorosa (painful toe) will often claim total disability from pain.

In slightly injured fingers we often find Dupuytren's contraction, which has almost made the fingers useless. These individuals are apt to think that they should receive full compensation for the fingers. A number of times we have been confronted with progressive muscular atrophy in the hand associated with a minor injury where it was plainly evident that the muscular atrophy was there before the accident and may have been the real cause of the injury being sustained at the time. As time goes on and this becomes worse the individual is sure to claim that the entire condition was the result of that injury.

The epileptic who has sustained an injury and whose epilepsy in the course of two or three years becomes more frequent and decidedly worse comes back, claiming it a result of his accident. Individuals who have been insane often become insane again following accident, and their friends attribute the insanity to the accident. We often find chronic neuritis associated with an accident persisting long after the injury has become well, but claimants are very prone to attribute the neuritis to the injury received. Tumors of the spinal cord have been claimed as result of accident when operation revealed a condition that could not have resulted from accident.

Injuries to the Syphilitic

Prior to the time that I became medical adviser to the Industrial Insurance Commission I was of the opinion that if a man contracted syphilis and had an injury follow at any time subsequent to the contraction of the disease, the mere fact of his being a syphilitic would influence his recovery from injury. From observation under the compensation act I have come to the conclusion that in an injured man who is a syphilitic in the secondary stage, or at any time prior to the ter-

tiary stage, wounds of the soft parts or fractured bones heal as readily as they do in the individual where syphilis is not demonstrated. In the cases that have frank tertiary syphilis it does have a great influence on repair, and in these cases the active treatment of the syphilitic condition does not appear to influence their recovery to any great extent, or at least much less than text-books would imply.

In this we have *tubes dorsalis* with all of its wake, complicated with accident; nerve arthropathies (Charcot's) coming up as a complication where the man was working and had trouble with the knee while at work which was later found to be a Charcot joint. Then we have rheumatism and rheumatoid and atrophic arthritis in the individual who has had some slight accident which laid him up for a time, and his chronic condition is hard to separate from the accident which he received.

Among the large classes of persons who file claims for accidents are those suffering from cardiovascular disease, aneurysm, varicosities, angina, pernicious anemia, diabetes, toxic goiter, nephritis, gall-bladder infections and stones, enteroptosis, intestinal stasis, abdominal adhesions, plenritic adhesions, gastric ulcers, chronic appendicitis, rectal fistula, hemorrhoids, amebic diarrhea, urethral stricture, pyelitis, stone in the kidney, hydronephrosis, hematuria, orchitis, epididymitis, varicose ulcers, perforating ulcers, eczema, ichthyosis, elephantiasis, leprosy, sarcoma, carcinoma, tuberculosis neurasthenia, hysteria, low mentality, and age.

Goiter Aggravated by Accident

Goiter in some of its forms is quite common in the Washington workmen, especially in the mountainous section of the state. Whole families are often afflicted with it. At one time I saw a family of seven, ranging from eight to twenty-two years of age, every one of the children and the mother having enlarged thyroid glands. In one section of the state it is claimed that even pigs suffer from the toxic goiter and die as a result of same.

We see a great many workmen who have some apparent thickening of the thyroid, accompanied by rapid heart action and nervous symptoms with more or less tremor with no exophthalmus. They become excited in talking about their injuries, complain of profuse sweating, fatigue, etc., which with our present knowledge of hyperthyroidism would lead us to a conclusion that these symptoms are due to a toxic thyroid and not attributable to the accident. They, however, contend that, although they had the enlarged thyroid, they

did not have the other symptoms until after the accident, which has often brought the question in my mind whether it is not a fact that in an individual, who has a mild form of iodo-toxinization an injury leaves the system less tolerant to an increased amount of iodothyronin and results in an increase of his symptoms.

This subject at present is under investigation in the state, and we have a few medical men giving their entire attention to this subject.

Difficulties with the Feeble-Minded

Low mentality in the individual workman complicates a claim for compensation much more than at first thought one would suspect. In my experience this type of claimant has about two thoughts that seem to have become entirely fixed in his mind. The first one is that there is a law compensating a workman for injury; second, that he had an accident resulting in injury. Through misconception of the law and lack of confidence in his advisers he thinks the compensation act is a game in which he is a player and it is only a question of win or lose, and he will not listen to the explanation of the application and intent of the law. He is not satisfied with time loss, but insists on being paid some amount because he was accidentally injured, and will not attempt to take up any gainful work because he thinks he knows of some individual who has had a similar accident and received compensation in addition to time loss. Any explanation offered to show the difference between his claim and those to which he may refer he attributes as being used by the commissioner to win in the contest in which he feels he is a contestant.

Such claimants often boldly assert that they are not receiving justice because of the fact that their cases have been poorly presented to the commission. After going away they are very apt to return and ask to have their claims reconsidered. In the meantime they have hatched a new brood of reasons why their claims should be reconsidered, and end by being very much dissatisfied, declaring that there is a good reason for being a Bolshevik.

Age Factor Important

In the aged workman having a moderately serious accident, as a rule, if the injury incapacitates him for a month or two, he comes to the conclusion that he is not able to return to any kind of work. In fact, he is not able to do much work, and was not at the time of injury, but he is certainly not entitled to a pension the rest of his life owing to the fact that he may only have been working a short time in a hazardous occupa-

tion and the injury was not sufficient to incapacitate a workman, eliminating the effect of age.

In the neurasthenic we have an apprehensive type of individual, one who is always magnifying his condition and is very talkative, using a deluge of words in which he complains that there is a misconception of his condition on the part of everyone coming in contact with him; that he is not getting a square deal; and that his accident has entirely destroyed his capacity for work of any kind. So he augments and magnifies his symptoms, always asserting that things are worse than ever. Back of all this he seems to have one single idea, that is, "How much compensation can I possibly get out of this?"

There is also the hysterical person, who always has something which he wishes to conceal or something which he wishes to avoid. So he proceeds to set up a train of symptoms, which, to his mind, will most impress the observer. The hysteriac is an actor, while the neurastheniac is a talker.

In war, both of these individuals would be classed as suffering from "shell shock." It is quite apparent, however, that we do not have to go to war to have the condition that has been designated "shell shock," because war statistics have shown that at least 85 per cent of the individuals who suffered from "shell shock" returned to the front; that the larger per cent of the remainder recovered on the way home after being S. C. D.; and that a very small per centage continued to have trouble until their compensation had been adjusted.

For this class of people a pension is the worst form of settlement. They should be given a lump-sum settlement, so that their pension is not dependent on their condition and they no longer have to make good in order to have it continued. Then they will recover entirely.

Then we have the individual who has just a plain "yellow streak." He is the individual that you can call by most any name and not exaggerate.

Psychic Effect of Expected Compensation

I should also like to call attention to the psychic effect of compensation acts. The very fact that the law compensates for certain conditions brings about a tendency in a great many individuals to lose sight of the real concept of the Compensation Act, and they insist that they be paid a lump sum of money for the accident, no matter whether or not they have any loss of capacity or earning power. While I am a firm believer in accident compensation and believe that all legitimate accidents should be compensated, a great many conditions arising under the compensation act would

be ridiculous if it were not for the pathetic side, because the idea of trying to get the most possible for a trivial injury has a bad influence not only on the individual's nervous system but on his idea of right and wrong. It is a breeder of dishonesty, falsehood, deceit, and a soporific to the conscience.

Universal Examination the Safeguard

However, social insurance legislation can only take into consideration the general welfare of its people at large and can not pretend to safeguard each individual case. Before a compensation act can be administered so that it will be just and absolutely impartial to the employer and workmen it will be necessary to have in the office of the insurance commission a record of the physical examination of every workman, and to require that a general examination be made at stated intervals and a record of same filed with the commission. Then it will be possible to separate the conditions that the individual had before his injury from the results of accident itself.

TAX ON CHILD LABOR

The tax of 10 per cent upon the entire net profits of employers of child labor in the United States became effective April 25. The Revenue Law of 1918 provides for a tax upon net profits to any mine or quarry in which children under sixteen years work, or of any mill, cannery, workshop, factory, or manufacturing shop in which children under fourteen work or children between fourteen and sixteen work more than eight hours a day or more than six days a week, or after seven in the evening or before six in morning.

RAILWAY SURGEONS SELECT LEADERS

The American Association of Railway Surgeons at its sixteenth annual meeting in Chicago, October 12-17, elected the following officers: president, Dr. Robert McConaughy, York, Neb.; vice-presidents, Dr. Isaac F. Harter, Stronghurst, Ill.; Dr. Paul E. Gardner, New Hampton, Ia.; George W. Thompson, Winamac, Ind.; treasurer, Dr. Henry B. Jennings, Council Bluffs, Ia.; secretary-editor, Dr. Louis J. Mitchell, Chicago; the two last named having been reelected. Members of the executive board are: Dr. Samuel C. Plummer, Chicago; and David Y. Roberts, Louisville, Ky.

VENTILATING PLANS EXAMINED

Besides the other work done by the Engineering Division of the Bureau of Inspection of the state of New York, the latter's Division of Industrial Hygiene is now examining and passing upon, in advance of installation, all ventilating systems proposed both in new construction and in existing factory buildings and mercantile establishments. Inspectors have been instructed to notify all owners of such establishments that their plans for ventilation systems must be submitted to and approved by the Industrial Commission before installation. By so doing they avoid any possibility of having their systems condemned later by inspectors of the Commission, which means needless annoyance, delay, and expense.

BETTER METHODS IN MEDICAL SERVICE

BY F. H. THOMPSON, M.D., MEDICAL DIRECTOR, OREGON STATE INDUSTRIAL ACCIDENT COMMISSION, SALEM, ORE.*

A PROBLEM of every industrial board that has a medical first aid provision is the securing of competent and efficient service to injured workmen. This is a paramount issue. The next in importance is the obtaining of such expert service at such cost as is commensurate with the ability and time rendered, and yet hold to the minimum that insures the funds solvency without abnormally high rating of hazardous work.

This problem, sooner or later, must be solved. It predicates a clear and harmonious understanding between the surgical profession and the industrial Board. It likewise necessitates placing in the Board rather broad power,—power to make and enforce certain rules.

Zoning and Standard Fee Bills

It is my belief that the first movement to better service is a standard fee bill for certain zones, the zones to include one or more states. This zoning idea is held because of the wide variation of fees in certain groups of states, with the overlapping of work in adjoining states. The fee scale should be a minimum scale that would be charged a working man in his respective community. Good surgical service can not be had for less, and there is no valid reason why it should be asked for at a less fee than the minimum. But it must be borne in mind by each medical examiner, that where a minimum fee is allowed, close scrutiny of reports is essential to avoid padding of bills by certain unscrupulous members of the profession, that would make the scale in reality far exceed the minimum. To secure a clear and harmonious relationship between the medical profession and the board, this scale should be chosen by representatives from the state medical society and the board.

Reports Essential to Good Service

A complete, original report, with clear follow-up reports, should be required of every surgeon. Too often incomplete reports allow an injured man to suffer a permanent partial disability that could have been avoided if the medical department had had full knowledge of the case earlier, and placed the man in proper and competent hands. This is especially true in rural districts where bone injuries are most frequently improperly cared for. This suggests the necessity of a suffi-

cient number of claim investigators who can render invaluable service by personal work among claimants and physicians, who can often save friction, and, more important, can report in cases of severity that are not in competent hands for the particular type of case in question. In this connection, one of the powers of the Board should be to refuse service from any surgeon who will not cooperate, or who ruthlessly operates.

A very important rule of the Board should be to require that no open bone work, such as grafting, wiring, pegging, etc., be done unless first taken up with and authorized by the Board. This, with the power of the Board to remove injured workmen from the care of one surgeon and place him under the care of another, will surely decrease the number of men that are surgical cripples rather than industrial cripples. Likewise, every eye and ear case should be treated by an eye and ear specialist. Some discretionary power would here have to be exercised by the Board on account of embedded foreign body cases in outlying communities, reasonable cases to go to the specialists.

There is one class of cases that we find are best treated by the orthopedist—namely sacro-iliac strain. These are fairly frequent, slow of recovery unless rightly handled, and too often aggravated by chiropractors, or neglected by the general practitioner. In Oregon even chiropractors are licensed. Since these are accident cases, the Commission should be empowered to recognize only surgeons as competent to treat such cases.

Selection of Specialists

Competent specialists should be carefully selected in the larger communities to whom men may be sent for special examinations; among these should be at least one neurologist. He it is who can best detect a beginning post-syphilitic condition or incipient insanity that is coincident with, but not the result of, an injury by industrial accident.

Medical service would be improved if closer attention were paid to reconstruction work by selected surgeons. While the leading consideration is restoration to earning capacity, rather than the cost in a given case, three or five hundred dollars judiciously devoted to reconstruction may easily save to the Board a life pension, and return the injured workman to a life of usefulness. This type of work should be done as early as possible,

*Read before the Sixth Annual Meeting of the International Association of Industrial Accident Boards and Commissions, Toronto, Ont., September 24, 1919.

and I would suggest that all temporary total disability cases extending over two or three months, unless the severity of the injury would easily account for the same, should be examined and cared for accordingly.

Direct Study Toward Injury Cases

One other thing that seems essential to the betterment of medical service is the occasional meeting of the county and state medical societies and the presentation of papers that deal with the problems arising between the surgeons and the Board, actually illustrating by stereoscope the good and bad results in certain injury types and thus the necessity of certain Board rulings and actions.

The Board should be clear and firm in all of its rulings and there should be a prompt acknowledgment of all questions or communications from the surgeons.

One other suggestion is to require filing early with the Board all x-ray plates, and the prompt reading of same by the medical examiner, in

order that errors in care of the injured may be detected in time to prevent permanent partial disability that could be avoided.

Abolish Hospital Contracts

One elimination is essential. Do away with the hospital contract system that too frequently renders poor services, overcharges the workman, and are not morally right, as every man should have the God-given right to be treated by a surgeon of his own choosing.

To summarize:

- (1) Pay a better fee for skilled service.
- (2) Give the Industrial Board broader power to regulate services, to make certain rules, and to enforce them.
- (3) Promote a clearer understanding between the medical profession and the Industrial Board by industrial programs at medical meetings.
- (4) Encourage reconstruction of injured workmen and, through investigation, etc., place the men in competent hands as early as possible.
- (5) Eliminate the pernicious contract system.

HOW CAN MEDICAL SERVICE BE IMPROVED?

BY MORTON R. GIBBONS, M.D., MEDICAL DIRECTOR INDUSTRIAL ACCIDENT COMMISSION, CALIFORNIA.

IN ACCEPTING the commission to write the following paper the author wishes it understood that he can not speak for all industrial accident boards and their problems. His opportunities for observation in this field have been markedly limited recently by reason of twenty-one months' service in the Medical Corps of the United States Army. The following remarks apply to California and to some other jurisdictions with which he is familiar.

In discussing this subject there will be included in the term "medical service" all that has to do with the physical, mental, and moral well-being of the injured, from the time of injury until he is returned cured to work, or receives a permanent disability rating.

There is no doubt that medical service whose aims include the functions implied in this statement has been defective. The onus is not by any means wholly upon the medical profession, because many influences beyond its control come to bear. The correction, however, lies largely but secondarily with that profession. The primary duty and initiative lies with the industrial accident boards.

In order to discuss the subject with economy of time there will be referred to here, for the sake of argument, some defects in the system as

now conducted. It must be understood that not all jurisdictions experience the same difficulties. Many of the defects here recorded will not apply to the experience of others.

Psychology and Medicine

Right psychology is probably lacking more often than right surgery. Insufficient medical guidance is present more than is poor surgery. However, poor surgery is too common.

Under the caption "psychology and medicine" come the defects due to lack of unity of interests. There is great divergence of interest incident to the injection of the middleman, that is, the insurance carrier, into this scheme. There are too much business and too little sympathy and understanding. An employer may be wholly in sympathy and have a laudable desire to care for the welfare of his injured employee; but the middleman, by methods with which all are familiar, may prevent and block that interest and solicitude, which might be of utmost value. Then there is delay in securing medical service. This often can not be helped, and in not many instances is it harmful except from a psychological viewpoint. It is to be noted that the results in the United States Army, on the field, were obtained in spite of terrible, but unavoidable, delays.

Another point is that the surgeon works for some one other than the injured person; that is, he is paid by another, and this fact tends to create suspicion in the mind of the injured. The suspicion may not be justified, but nevertheless, it is a reality to be coped with.

Frequently the representatives of insurance companies treat the injured as if he were disabled because of spite for the adjuster; every request or statement by the injured is combated. The injured employee is badgered, sometimes insulted; doubt is cast upon his veracity and he is constantly threatened with loss of compensation; his mind is filled with uncertainty at a time when he is particularly susceptible to shock to the nervous system.

Incentive to Get Well

Improper environment is another important factor. Solicitous friends in misdirected kindness give the idea that the injured is terribly hurt. He is made to feel abused and that his injury is worse than it actually is. His lodges serve the same purpose, and the unions likewise. In connection with this last feature,—the lodges and unions,—comes the question of incentive to get well, or the reverse. Sometimes the injured receives benefits which encourage him to invalidism. Red blooded men are not susceptible to influence of this kind, but, unfortunately, we have all types to deal with.

In conjunction with the psychological and surgical features combined, there is also the purely surgical consideration. This includes the lack of expert surgical attention. A degree in medicine and surgery is not sufficient qualification. To some employers and insurance companies the surgeon looks good in proportion to the smallness of the fee which he is willing to accept. On the contrary, no surgeon is too good. Is it not true that permanent disabilities cost far more than the best surgery? An average physician can count upon his fingers the men whom he would trust to operate upon his loved ones.

Poor surgery is not always to be attributed to poor surgeons. A fault of some most skillful surgeons is impatience. The recent Army experience has taught a telling lesson. Patient application of physiotherapy will often effect a practical cure when radical surgery would have destroyed all chances of anything but a makeshift.

For some reason or other, probably lack of information, possibly lack of interest created by lack of adequate compensation, surgeons have failed to follow up their work. The industrial accident surgeons have not been alone in this

matter. Men in private practice have been guilty of very much the same thing; that is, the matter of restoration of function after injury, which is a very important point, indeed, and it has been grossly neglected. The surgeon has contented himself largely with seeing the bones unite, the tissues heal in proper contour. In spite of the lessons of the text-book, to a large extent, he has allowed the function to come of its own accord. He has not followed up his case in that particular, which is just as much a part of his work as the actual setting of an original fracture. Apparently, surgeons of the United States have lagged behind those of older countries in this matter. The last five years, however, have firmly established the system upon a basis which will prevent it ever again being ignored. The object lesson provided by our own Army and Navy should be taken to heart by every surgeon who attempts to do industrial accident surgery, or any other kind of surgery. Surgeons of high attainment and who ought to be thoroughly familiar with this thing, but who have not been in the Army, are still in the dark and somewhat resistant.

Recently a case was presented for a permanent disability rating. The man was an Italian with poor mental equipment. He had received a Colles' fracture in both arms. The rating asked was for 50 per cent disability with reference to both arms, and the request was made by a skillful surgeon who does much industrial accident work. It was discovered that this injured man had received no physiotherapy whatever. His employer was so advised, and he was also advised that no permanent disability rating would be applicable until proper treatment had been exhibited. Two months later the man reappeared with remarkable restoration of function, yet he had developed it himself; he had had no physiotherapy. This simply illustrates the surprising fact that good surgeons fail in other legitimate functions than surgery.

Occupational Therapy Prevents Neurosis

In the matter of fees it is not so much the actual smallness of the fee which the surgeon receives as it is the constant pressure which is brought to bear upon him to keep fees down and to keep expense down, and the fear which he may entertain that his services will not be called for unless he does work economically from the standpoint of first cost. A surgeon can not, from the fees ordinarily offered, spend his time at physiotherapy. He can at best only direct the occupational therapy, the physiotherapy, and re-education. These departments naturally come

under the work of individuals skilled in and specializing in these matters.

Another lack, then, is that whole system of occupational therapy, physiotherapy, and re-education previously alluded to. Industrial injury practice now demands it. A conservative estimate will place the actual financial saving therefrom at from 25 to 50 per cent in the combined cost of medical service and compensation. One reason for this is that there are practically no traumatic neurosis cases when occupational therapy is exhibited. It is further accounted for by the shortening of convalescence and the restoration of function while convalescence is going on. It must be realized that the longer convalescence is delayed and the longer restoration of function is delayed, restoration of function will be less complete.

After this brief reference to the shortcomings of medical service, let us come now to the suggestion for correction. It will have been observed that running through the foregoing there is the charge of lack of understanding; lack of common interest; lack of willingness to assume the injured man's point of view; lack of willingness to incur expense; lack of foresightedness; lack of knowledge of modern methods, in which the employers, the insurance companies, and surgeons unite.

The correction will come through education. It will probably be demonstrated to the employers and insurance companies by the industrial accident boards that to save function, although the cost is greater at the beginning, will be economy in the end. A few weeks ago a case was presented for permanent disability rating. A rather harsh letter was written for the benefit of the insurance company, for the insurance company had exhibited no physiotherapy and no occupational therapy, and it was apparent that there was function present which needed only to be developed. The insurance company wished to know what was desired and what kind of treatment was to be expected. Proper directions were given. A few days ago the insurance adjuster reported 50 per cent improvement in function after two weeks' treatment, and acknowledged his great satisfaction and complete conversion. Such facts as these are rather elementary, but serve to show that the smallest details are to be considered. It is by this method of proselyting, too, that those responsible for the injured workman will be taught the advantages and will not fear the increased initial expense.

The psychological question is also very important and must be considered and met. There must not be antagonism. There must be a feeling of security in the minds of the injured. There

should be some system established to provide for reassuring the injured, as soon as practicable after his injury, regarding what is to become of his case and what he may expect in the matter of treatment, length of compensation, and restoration of function. He must be assured that his family will be taken care of, and that he is expected to comport himself in a certain manner. He must understand early what lines of discipline will be expected of him. The offer of cooperation should be made to him so that he cannot mistake it. All suspicion should be removed from his mind. The education here must extend to his friends, and his associates, and his union. He must not feel that his injury bears upon him as a penalty, but must feel that he is going to get well, that people want him to get well, and that a job awaits him in accordance with his capabilities when he does get well.

We must attribute the remarkable result obtained in the recovery from wounds of the United States Army in large measure to the unusual environment and to the anticipation most of the wounded feel.

The vast majority of wounded soldiers have looked toward discharge from the Army as their goal. There has been a veritable stampede in this respect and, whether right or wrong, the wounded have shared in this and have looked upon the discharge as a prize for the accomplishment of recovery.

The United States Army provides that no soldier injured in line of duty shall be discharged until he has received all of the physical benefits that the Army can give him. The soldiers know this, and, with the burning desire for discharge within them, make every effort to restore function and secure release. Such a condition can not be simulated in the industrial field, but the illustration indicates what psychological value incentive to get well has. The football player injured at the beginning of a season is striving with might and main to get into the game again. He will submit to any kind of painful treatment that promises restoration. There is the psychology again.

Efforts can be made, at any rate, to avoid circumstances surrounding the injured workman which are the reverse of those of the soldier.

Personnel of Medical Service

Next comes the selection of the surgeon, the hospital, and the others who treat the injured workmen under guidance of the surgeon. There have been two wonderful contributions to medical knowledge and efficiency in this country, virtually due to the war. These are the methods of Car-

rell and the use of Dakin's solution in the treatment of infected wounds, which have revolutionized surgery of such conditions. The other is the system of occupational therapy, physiotherapy, and re-education applied to the injured. The United States Army has at this time a tremendous staff of surgeons skilled in this latter work; of physical and occupational aid,—young women mostly who went into the work through enthusiasm who are willing to stay in it and to contribute the same enthusiasm,—and directors of re-education.

In a short time all of this magnificent organization will have been dissolved. The author has come into close contact with a hospital organized for the complete treatment of the wounded, and he has known the personnel. He knows that many of these workers are available for industrial accident service.

For re-educational work, physiotherapy, and occupational therapy there is a required something more than the relation of patient and surgeon, or pupil and teacher. There is injected a certain personal relationship, the manifestation of personal interest and sympathy. As a matter of fact, the entire system requires a great deal of the personal element. Everyone is not mentally equipped, no matter how competent, to carry on this work. From the highest to the lowest, the individual worker should be chosen according to adaptability and known qualifications. An easy way to secure a personnel would be to make a canvass of the surgeons who have returned from Government service and who have had general hospital or base hospital experience, and to enlist the services of certain selected individuals. They would know how to proceed to secure adequate occupational therapists, adequate surgical treatment, and adequate physiotherapy, and re-education. Remember, the Medical Department of the United States Army and Navy had full charge of installing, developing, and applying this system in their services. Since personality, interest, and genius help so much, this can not be machine made thing to be run by rule. A few years ago the writer had opportunity to visit, in England, a large hospital run substantially on the principles involved in occupational and physical therapy. The organization was wonderful, the results phenomenal; but it was a one-man organization. The one-man feature permeated the whole institution. That medical superintendent knew each one of his 250 different patients, the peculiarities of each. There were 250 different problems. Without that man or one with a comparable genius the place and the scheme would have been a failure.

So let the personnel be selected with the utmost

care, for value and not for low surgical cost. It can be done; it will be worth the trouble.

It would be superfluous in this sketch to try to outline a plan which would be a panacea for all ills of the medical service. However, any plan should take into consideration the psychology of the injured workman and free his mind of apprehension. It should provide the proper environment, and it should provide the proper surgical care; it should include the lately well learned lessons of occupational therapy, physiotherapy, and re-education; it should include a certain discipline to which the injured individuals should be subjected in order that they may not avoid the necessary treatment and environment.

ELIMINATION OF OCCUPATIONAL HAZARDS

The correction of defects which will eliminate unnecessary hazards promotes increased production, creates a higher morale, and makes for greater satisfaction among employees, says Dr. Tracy Hamilton Clark, medical director, National Union Assurance Society, in the October issue of *Medical Insurance and Health Conservation*.

According to Doctor Clark, the personnel of the Division of Industrial Hygiene requires the service not only of physicians, hygienists, and sanitarians, but of highly specialized engineers familiar with problems of light, ventilation, temperature, humidity, and all factors affecting the health of industrial workers. He gives a brief summary of the requirements of industries which involve special dangers and states that efficiency plus humanity demands the control of needlessly hazardous conditions.

POISONED AIR OF INDUSTRIAL SECTIONS

Pine trees die in industrial cities, especially where much soft coal is used, and they die because they can't breathe, says the *Medical Council*, November, 1919.

Deciduous trees that shed their leaves or breathing apparatus once a year may live there, for they renew their respiratory systems every spring. Coniferous trees, especially those with needle leaves, are easily choked by the carbon and sulphur products in the air, and they gradually die. Man is just as much biologically unfitted to live in a poisoned atmosphere as is the pine tree; for he is of the perennial type, not the deciduous one, and his respiratory system is very sensitive.

In addition to this, man is peculiarly sensitive to organisms that gain entrance to the respiratory tract; and the chemical irritation caused by the acids generated in the air of industrial sections renders him all the more susceptible. Indeed, with man, nearly all of the respiratory diseases, including catarrh, are more or less infectious; and if there is a great incidence of respiratory disease in an industrial city, with the gradual generation of peculiarly malignant strains of common catarrhal organisms, the persons in the surrounding country are apt to be infected, even if the air at their homes is pure. The great consumption of gasoline in the cities is also greatly adding to air contamination.

The lesson from all of this is obvious and it is becoming increasingly evident that smoke and gases resultant from combustion must be more intelligently handled and a way found to eliminate this menace to public health.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C. E. A. WINSLOW, DR. P. H., *Editor*

PUBLIC HEALTH MEETINGS IN NEW ORLEANS

THE annual meetings of the American Public Health Association offer recurrent reminders of the rapid progress of both theory and practice in the wide field of preventive medicine and health conservation. The meeting held at New Orleans was one of the most notable landmarks along this path. An attendance of more than a thousand persons, an increase of more than 100 per cent in membership and budget, were the outward and visible signs of a growth, even better evidenced by the serious and substantial quality of the proceedings and the united and militant spirit of service which characterized this note-worthy gathering.

The present of the American Public Health Association is the natural outgrowth of a long and honorable past. Reference to the proceedings of the last convention held at New Orleans seventeen years ago shows only seventy-one papers and addresses as against 225 in the present year; but the quality of the contributions was as representative of all that was best in the American public health movement in 1902 as in 1919.

A review of the proceedings of the recent convention, such as is presented elsewhere in this issue of MODERN MEDICINE, produces an almost staggering impression of the complexity and variety of the tasks of the modern health officer. They involve delicate problems of chemistry and bacteriology, complex questions of statistical analysis and interpretation and the application of skilled engineering construction and operation, as well as the more obvious tasks of medical diagnosis and personal hygiene. They correlate with the sociological problems of the minimum wage, with the economic problems of food preservation, food conservation, and food distribution, with the educational problems of the school, and with the political and legal problems of Federal, state, and local government. Above all, they involve the

study of group psychology and the constructive molding of public opinion if practical results are to be attained.

Dr. L. K. Frankel, in his presidential address, called special attention to three national movements which are pregnant with possible influence upon the public health movement of the present day,—the formal entrance of the Red Cross into the field of public health activity, the agitation of the question of compulsory sickness insurance, and the demand for the coordination and expansion of Federal activities along public health lines. Committees, which should be able to exert a far-reaching influence, were recommended to deal with each of these problems, the first to confer with the Red Cross in regard to the essential correlations between its public health nursing and health center campaigns and the work of the legally constituted public health authorities; the second to consider the inter-relationships between the prevention of disease, the medical and nursing care of the sick, and the compensation of wage earners for financial losses due to illness; and the third to urge the appointment of a congressional committee to report on the organization and development of Federal health activities.

The demand for a solution of the last of these problems by the working out of a plan for a more effective Federal public health service, was perhaps the outstanding feature of the convention. Eleven different bureaus at Washington are dealing with public health problems, most of them with skill and discretion, but none of them with funds adequate for the tasks at hand, and in many cases working at cross purposes with resulting confusion and loss of influence. There is no possible chance of securing action at the coming session of Congress but the next six months should be utilized in the preparation by a duly authorized Committee of Congress of a broad and comprehensive plan which shall realize the ideals striven for by the leaders of the public health movement for half a century.

Throughout the meetings of the Association, there was manifest a vigorous and determined resolve to obtain in the Federal, state, and local fields of public health work the organization, personnel, and funds requisite for the prosecution of a modern campaign for the promotion of the Nation's health. Progress in our knowledge of sanitary science and preventive medicine has been made by leaps and bounds, while progress in the application of such knowledge has been lame and

halting. Doctor Lumsden, of the United States Public Health Service, suggested a campaign for the saving of 250,000 lives during the coming year. It is quite certain that such an objective which would save five times our loss from combat in the war is within range of practical achievement. It behooves the health officer to approach the possibilities of his office with a new and wider vision and to deliver his message for the healing of the nations in a voice that must be heard.

A CRITICAL SURVEY OF PUBLIC HEALTH TOPICS

- I. *The Visiting Nurse Should be a Public Health Nurse.*
- II. *How About the Private Duty Nurse?*
- III. *Why is Poor Ventilation Harmful?*
- IV. *The Health Center.*

By JULES SCHEVITZ, GENERAL SECRETARY, OKLAHOMA TUBERCULOSIS ASSOCIATION, OKLAHOMA CITY

I—THE VISITING NURSE SHOULD BE A PUBLIC HEALTH NURSE

A great deal of good is bound to result from the spirited discussion found in recent issues of nursing and public health journals regarding the definitions and true functions of public health and visiting nurses. One is struck with the feeling that, regardless of some of the apparent differences entertained by health workers, nearly all agree that whether she actually is or is not, the visiting nurse should properly be a public health nurse.

Dr. H. W. Hill's assertion in the July issue of *Public Health Nurse* that the visiting nurse is not a public health nurse, and Miss Brainard's refutation in the same issue, have been productive of considerable discussion among health workers. The August and September issues of the above publication contained articles and correspondence from prominent public health nurses as well as other health workers on this subject. Dr. Lee K. Frankel, for example, disagrees with the stand taken by Doctor Hill. "While her (the visiting nurse's) primary purpose in the home, it is true, has been to render relief to the suffering, it is her value as an instructor that has made visiting nursing take such stride as it has during the past ten years."

Miss Katherine Tucker, of the Philadelphia Visiting Nurse Association, states that "the actual bedside care which the visiting nurse does is now admittedly and avowedly about one-third of her duty in any home which she enters. The other two equally, if not more important, sides of the visit-

ing nurse's services are in terms of teaching the family how to keep well, and applying social treatment where needed, in order to remove the environmental causes of illness, thus making it possible for the family not only to get well, but to keep well."

Miss Tucker offers a possible explanation for the cause of these differences in opinion, when she says:

"We are forced to admit that not all visiting nurses do lay sufficient emphasis on the public health side of their function." This latter view is further borne out by a letter from Miss Mary E. Westphal, of the Chicago Visiting Nurses' Association, who writes, "I do feel that there are some nurses doing this work, without qualifications or any preparation for it, who are not doing the work as it should be done." These admissions indicate in a very forceful manner that, while some visiting nurses are not fulfilling the functions of true public health nursing, yet the answer seems to be that all well trained and properly qualified visiting nurses should be public health nurses.

Dr. S. J. Crumbine, State Health Officer of Kansas, in a recent paper¹ speaks of the "evolution of the visiting nurse into the public health nurse." Yet such authorities as Dr. Julius Levy and Dr. Josephine S. Baker take exception to this view. In discussing a paper on public health nursing by Professor Winslow, Doctor Levy² states: "I believe we ought to make a distinction, from the very beginning, between public health nursing work and the district nursing work. To my mind

¹. Am. Jour. Nursing, September, 1919.

². Report on Child Welfare Standards, U. S. Children's Bureau, 1919.

public health work deals with the prevention of disease, and not with its treatment or cure," and further he goes on, "The greatest development of public health nursing work must not be expected to come from the district health nursing." Following Doctor Levy's discussion, Doctor Baker remarked: "I agree perfectly with Doctor Levy that public health nursing is not nursing the sick; public health nursing is nursing the well. It is the prevention of the disease, and not the correction of the disease, or the treatment of disease."

Yet, Professor Winslow, in a subsequent address on "The Rôle of the Public Health Nurse," reprinted in the *New York Health News* for August, 1919, states: "When I speak of the public health nurse, . . . I include every member of the Visiting Nurses' Association, if the Association is properly organized and recognizes its responsibility for health teaching." Later he says, "In this combination that has been worked out in our best Visiting Nurses' Associations of the care of the sick and teaching of the well, we have not only a great contribution to social nursing, but something very suggestive for the future development of social medicine."

II—HOW ABOUT THE PRIVATE DUTY NURSE?

In the trail of the discussion as to whether the visiting nurse is a public health nurse comes another worker, presenting claims that she, too, does public health nursing. Reference is made to the private duty nurse. The discussion is evoked by a paper presented before the meeting of the Northwest Nurses' Association by Dr. S. J. Crumble, of Kansas, in which he states: "Ordinarily the graduate nurse concerns herself only with the patient whom she is hired to serve; her relation to the family is incidental. . . . The public health nurse has an entirely different relation to the family. She comes to serve the family, as well as the sick individual, without the hope of fee or reward."

Under the title, "Unjust Comparisons," the editor of the *American Journal of Nursing* takes vigorous exception to Doctor Crumble's "comparison of the public health nurse with one whom he calls the graduate nurse, evidently the private duty nurse, as we term her." The editorial continues: "Every time we hear or read a comparison of the public health nurse with the private duty nurse, which exalts the one and lowers the other, we feel indignant at the misconception of the latter's scope of work. It would seem as if the people who are thinking and studying along lines of public health, exclusively, had lost their sense of proportion, or were ignorant of nursing history."

Speaking further of the private duty nurse, "her duties are exactly those described by Doctor Crumble as belonging to the public health nurse."

While the private duty nurse cannot legitimately lay claim to the title of public health nurse, it seems only just to admit that the ideal private duty nurse will take every advantage to impart much valuable health information to members of the family, other than the patient she is serving.

III—WHY IS POOR VENTILATION HARMFUL?

A discussion of the fundamental physiologic basis for current views regarding ventilation is presented by Carlos I. Reed,³ of the United States Public Health Service. The views of the early investigators along this line were many and diverse. Most notable among these was the theory, advanced by Brown-Sequard and others, that the harmful effects of poor ventilation depended on the presence of expired substances. The conclusions reached by the New York State Commission on Ventilation in its recent experiments, that neither excessive carbon dioxid nor bad odors in any way caused discomfort or decrease in efficiency, disprove the stand taken by these earlier workers.

Investigators of recent years have proved that conditions of ventilation depend upon control of moisture, temperature, and motion of the surrounding air; and that, when moisture and temperature rise, even moderately, and the air is allowed to remain stagnant, there is a decrease in physiologic efficiency; and that this effect is dependent on the interference with the elimination of heat from the body. If this interference is sufficient, the body temperature may rise.

The rise in body temperature acts in a variety of ways, to the detriment of the body, as shown by disturbances of metabolism, decreased working power, and early onset of fatigue. Neither the diminution of oxygen, the increase of carbon dioxid, nor the generation of odor, are of themselves factors in these effects, with the possible exception that decrease in oxygen may affect the appetite.

On account of the similarity of observed effects of fatigue to those of the now recognized poor conditions of ventilation, it is apparent that there is a close relationship between the two conditions and it may be that the effects are the same, though the mechanism is not clearly outlined.

It is apparent that the processes underlying the action of increased temperature have not yet been sufficiently determined, but it is possible that the

³. Am. Jour. of Public Health, September, 1919.

temperature nerves of the skin, the hydrogen ion concentration, the osmotic properties of the cells, and the electrical reaction of the body tissues may be of importance.

V—THE HEALTH CENTER

"A health center is a place where people may come to learn how to keep well," is the keynote of a paper by Dr. Merrill E. Champion, of the Massachusetts State Department of Health, at the International Child Welfare Conference held last May. While the subject of his address is "Health Centers for Pre-School Children," he dispels the view that these children require individual attention by stating that "we should have health centers which should include all, from the baby to the adult."

The health center is a distinct advancement over the "clinic," in that it signifies more especially the idea of disease prevention and health preservation, rather than medical treatment and disease cure. The efforts of the health centers should be constructive and positive in nature; "the workers should deal in 'do's' rather than in 'don'ts.' The important factors in a successful health center are the enthusiastic public health nurse and physician who can inspire in people the desire to pursue the ideal of health. Doctor Champion believes that the conduct of the health center should be left to the municipality.

In small communities the whole health center will be under one roof. In large places there

should be one main center, preferably in some municipal or county building, with as many branch offices as are necessary to reach all the people conveniently and to give a sense of neighborhood proprietorship. When a community is too small or too poor to maintain a health center, the only course is the combination of two or more similarly situated communities to provide requisite service for all.

"I doubt if it is wise to combine a hospital with a health center," says Doctor Champion. "This same objection would hold good for nose and throat operations. I do not see that they belong in a health center. Eye and dental examinations might be included. Dental treatment would be included at first, at any rate, simply because the people demand it. Such a health center would serve as a great educational center, comparable only to our public schools."

SOUTHERN MEDICAL ASSOCIATION

The Thirteenth Annual Meeting of the Southern Medical Association was held at Asheville, N. C., November 10 to 13, 1919. Special sessions were arranged jointly with the American Child Hygiene Association.

Public Health questions were markedly prominent on the program and a number of public meetings were held on problems of disease control and prevention.

Dr. Franklin H. Martin, Chicago, gave an address on "Medical Organization," and "Medical Organization and Public Health" was the subject of an address by Dr. Alexander Lambert, of New York. The Southern States Association of Railway Surgeons, as an auxiliary, provided a symposium on traumatic surgery.



The accompanying photograph was taken at the annual dinner of the Wisconsin Anti-Tuberculosis Association, held at their own building, the Health Service Building, in Milwaukee, October 31, 1919. About five hundred people attended.

THE LARGER FIELD IN TUBERCULOSIS

BY ALLEN K. KRAUSE, MANAGING EDITOR, AMERICAN REVIEW OF TUBERCULOSIS, BALTIMORE, MD.*

THE title of my address is of your committee's choosing. To do justice to it is really a formidable task. When you ask me to discuss a progressive program, I assume that you expect me to lay down lines of attack against tuberculosis that will work, procedures that will bring results, results that will be reflected in our daily life in such a way that every man and woman will begin to wonder what has happened to their old acquaintance, Consumption. When you ask me to do this, you lay a burden upon me that for centuries has taxed far abler talents than mine: you ask me to lay plans that will reconstruct society; to have our individuals put the living of a hygienic life above the amassing of a competence; our captains of industry everywhere, the health of their communities above the returns from capital; our officials, the abolition of rookeries above the erection of monuments, and the enforcement of laws above the making of them; our schools and colleges, the training of men for service above that for position; our medical schools, the example of Trudeau above that of the day's medical Croesus; our churches, the all round development of their people above marble and cloth and vessels of gold. When community or public health becomes as intimate a part of everyone's thoughts and plans and ambitions as the struggle for a motor-car, or the changes in the value of commodities, or the "front" to be maintained before all, or even the selection of that spot above which a final R. I. P. shall be chiselled bold, then we shall begin to see what can happen to our old friend, Consumption,—and to many another sticker of a crony besides.

A Price for Civilization

Tuberculosis is a price we pay for our civilization. The two are inextricably commingled and are continually being reflected upon each other. But this fact should not in the least condemn our civilization, or even impugn it. Whatever we may

Whatever makes for better conditions as regards tuberculosis infection and disease tends, with a very few exceptions, to reduce the incidence or deleterious effects of all other diseases.

A community of "no-tuberculosis" at once presupposes a community of cleanliness; of temperance and sobriety; of adequate light, space, and air, both within and without its habitations, offices, and factories; of labor enough for all; of economic and industrial over-strain for none; of an intelligent and enlightened medical profession to correct the disabilities of man; of a strong and sympathetic citizenry with an advanced point of view.

think of its present character, whatever its inequalities, we cannot gainsay that it is the best that man has yet evolved. If our criteria be standards like the distribution of comforts, the position of women and the child, the toleration of slavery and of cruelty to the criminal and unfortunate,—and I consider these fair tests,—then we stand on a rung from which we can look down upon every age that has gone before. But while we congratulate ourselves upon our position we must remember that civilization is no more static than is anything else in the world. In constant flux, it is nothing more nor less than the individual writ large; and its lineaments, its mind, its movements, and its ideals are simply Gargantuan projections of the individual's. Where civilization is headed and where it is going, no one can tell. But it is going somewhere; it will never stand still, though a thousand Canutes issue their commands. To every one who thinks, it is continually calling, "What are you going to do about it?" And if a man be of a constructive turn, he should venture a reply.

I cannot be a whit different from any of you in longing for that ideal state of society,—in other words, that state of mind, that point of view,—that will demand and allow for every soul enough light, enough space, labor and toil enough, to keep the human machine trim and fit. But in dreaming of such an ideal I am always struck with the futility of forcing a mechanism upon society to upset it and make it fit an ideal. Among free men it is the people who are the state, and any change of the state ideal must originate and come into being through a change of the popular ideal. There can be no real evolution by revolution: there may be much action and reaction, but never evolution. And it is as true as anything can be that the people, the mass, will

*An address delivered under the title, "Medical and Scientific Premises for a Progressive Program Against Tuberculosis," before the Fifth New England Tuberculosis Conference, Providence, R. I., October 16, 1919.

evolve just as surely as the individual will evolve; and this is certain no matter how repressive may be the Bourbon preservers of the existing order or how explosive its destroyers. Where there is the ballot,—and the ballot is coming all over the world,—there can be no revolution that is based on reason: it can be only passion that resorts to this "corrective" of social evils. If this is not true then man writes himself down as a fool, for he is putting the dynamite under what he himself has helped to erect or maintain.

Put the Health Message Across

I am led to these reflections because the more I look into what we call the tuberculosis situation, the more I am impressed by the fact that it cannot be considered without paying attention to the society in which it now exists. As a consequence the problem immediately presents itself of how to deal with this state of affairs, if we are to make any headway. There seem to be only two alternatives. One, the more spectacular, the more appealing to those who love the limelight or to those whose sympathies now and then play havoc with their intelligence, is to damn the existing state of affairs as all wrong and to come forward with a new broom: to make a clean sweep and then to start this world anew with the few immaculates who have escaped being caught in the refuse. The other alternative is to search through this sorry world of ours in an endeavor to find some solid ground peeping above the maelstrom, to hunt for a foundation and gradually enlarge this until it blocks the current or perhaps fills up the pool, providing the while an ever widening refuge for the poor unfortunates who have been struggling in the waters. I am still old fashioned enough to believe that if the appeal to reason will not be listened to, then the cry to passion would better not be uttered. I believe that every progressive movement must be based on information presented to the intelligence, and that the reconstruction, the evolution, of society can be accomplished in only this way. I believe that the *modus operandi* of any progressive movement against tuberculosis must follow this line. *We must get to the people, to all the individuals who constitute society: in the language of the street we must put what we know about tuberculosis across.* And although I may be here more to tell you what we know about tuberculosis, the matter of "putting this across" shall be my underlying text. Beneath every medical and scientific premise that I may establish is always the more fundamental premise that the man on the street and the dweller in the tenement know what you and I know. This vulgarization of information is ab-

solutely essential to any progressive movement. When a tuberculosis specific or a practicable method of prevention has been invented, there may be a different story to tell. But until this time arrives, there must be perfect cooperation between the organized authorities of the state and the people. With the people indifferent, the state will labor to no effect: with those in official position holding back, the efforts of the individual will avail little. Short of a catastrophe,—and tuberculosis does not work in cataclysmic fashion,—the only conceivable remedy for indifference is information driven home.

But let us get back to our particular topic. I would call that movement progressive which with increasing ratio would result in reducing infection, morbidity, and mortality from tuberculosis. If we reduce infection, we thereby reduce morbidity, and mortality. If by any special means we reduce morbidity, we thereby reduce mortality, though not necessarily infection. If we possess measures that directly reduce mortality, these need have no effect on infection or morbidity. The great desideratum, therefore, is something that will work against infection, though until we have hit upon a perfect anti-infection mechanism we must continue to make every possible direct attack on morbidity and mortality.

Not Contracted by Voluntary Association

Now I consider that we already have in our hands all the necessary medical and scientific information upon which may be based the premises for a progressive program against infection, morbidity, and mortality: and this is my answer to the superficial accusation that we are not getting anywhere with tuberculosis. I hope to prove this, and should be glad to have a similar proposition proved for any other infection that is not contracted by voluntary association.

We may first take up our scientific information. Most of this has to do with infection and morbidity.

For all but a thoroughly negligible proportion of infections, we know to a certainty the original vehicles of infection. These are human sputum and cow's milk. There is not the least doubt concerning the method of infection by cow's milk: it is by ingestion. The method of infection by human sputum may be debatable. The enormously widespread tuberculization of the human being during the first few years of life seems to me to weigh decisively against the opinion that intimate contact with the sick, the "open" consumptive, is the common method. This is a frequent method, undoubtedly: but that most children, or

even a fair proportion of them, are intimately associated with consumptives is simply not in accord with the facts of every day life. If, too, this were the common method of infection we would of necessity find many more tuberculous infants, for whom physical contact with adults is the most intimate. Yet 10 per cent of *infected* babies (under one year) is the high average maximum proportion in statistical studies; and from here the curve of infection rises steadily, keeping pace with all those activities of the child that take it out of the home and interrupt the continued intimacy of familial association. It seems to me that to explain the bulk of early infection we must look somewhere else than in the home. Nor do we have to go far to find all the human sputum,—all the loose bacteria, bacteria of all kinds,—that the most voracious bacteriologist might desire to snare. I don't know when the first anti-spitting law was enacted nor how many are buried in the codices of the land, but this I do know: that in this year of grace our highways are still besmeared with the offal of the throats and lungs of myriads; and I am equally certain that every child, at play in these highways, day in and day out, is putting into its mouth the sputum of others, sputum that can and does contain every variety of pathogenic micro-organism to be found in the sputum of walking men. Why should we be amazed when the students find so many children of healthy parents with tuberculous tonsils and adenoids? Why shocked at all the lumpy and fistulous necks? Why puzzled because we cannot eradicate diphtheria completely? And then we walk through all this sputum and bring it to our homes; and in the handling of our shoes even you and I have ample opportunity of acquiring others' sputum to ourselves. Right here on our highways plain to all, are the very conditions by which one consumptive can in an hour infect scores and hundreds of his fellow men; and seeing and knowing this, we need not search much further for cumbrous mechanisms to explain the rapid and universal tuberculization of the race.

Prevention That Is Practicable

What premises for a progressive program does this information suggest? First, that we must see to it that all milk that enters our households comes in clean. Every man who buys his milk, should buy it free from pathogenic bacteria. To reply that this is not a new weapon of attack is not to the point. What is pertinent is that efforts in this direction have heretofore been either only local, or wasteful, or inadequate, or based on misapprehension of the results to be obtained.

Under present conditions, to meet the situation nothing can be more wasteful, extravagant, and unproductive of real results than the slaughter of infected cattle. We have learned a tremendous lot about tuberculosis since this was the method put forward to prevent bovine infection of man. All know what has been done. Money has been poured out; herds have been depleted; evasion and trickery have been resorted to; animosity and strife have been engendered, and—tuberculous cattle are still as common as can be. This whole episode in the antituberculosis movement should teach a pregnant lesson to those who are so certain that they can eradicate human tuberculosis by the mandatory segregation of the sick. If we cannot wipe out a disease by the wholesale slaughter of dumb, pent cattle, what is there that would lead us to believe that we can get anywhere with the policy for the permanent or periodic captivity of aspiring man? I say "policy" because its actual practice and enforcement are beyond my imagination.

The only effective and economical way to prevent milk-borne infections is through the public control of the distribution of the commodity. From the time that milk enters the corporate limits of a community until it reaches the consumer it should be under the care of the authorities. There is to-day no more reason why a municipality should tolerate the private retail sale of milk than that it should put up with the pump on every corner.

The municipal control of milk should be the business of the Board of Health or a subdepartment under the latter's supervision. All milk that is to be consumed in the municipality should be brought by the producer or the wholesaler to stations that are set aside for its handling. Here trained employees of the milk department should bottle and pasteurize it: and from the several central stations it should be transported under civic control to the consumer, and the cost collected by the city.

Civic Distribution of Milk

Some such method is perfectly feasible. More than this, it would be vastly more economical than are the present methods and would undoubtedly bring down the cost of milk to the consumer.

Central collecting and distributing agencies would of themselves eliminate much waste that present methods entail; the producer or wholesaler would have only one or, at the most, several deliveries to make, and would carry on his books no slow or bad accounts. Distribution would be routed; there would not be, as at present, dozens of companies crossing one another's territory. Above

all, there would be safety for the consumer; and the responsibility for any lapse in the handling of the milk could be immediately fixed and shortcomings remedied. In its board of health every municipality already has in existence the nucleus of the organization that would control the milk supply: the increase in taxation necessary to equip and maintain it would be relatively slight. The argument that the taxpayer should not help to pay for the other man's milk is no more valid than the one that he should not help to pay for the latter's water and the collection of his garbage. Milk in adequate amount for the very poor would be supplied by moneys from public funds, or, as at present, from those of semi-public organizations.

Eventually some such plan is bound to be evolved. Civic control of the distribution of milk with pasteurization by civic authorities must form no small part of any progressive program to combat many infections, particularly tuberculosis; and it is one of our duties to speed the day when it shall arrive. Have the farmer slaughter his *sick* tuberculous cattle by all means: work with him for every possible improvement of his dairy: but make your loudest demands for municipal milk supplies that are regulated basically like city water supplies. Control the sources if you can; but if, as in most places, you cannot, control collection and distribution. Pasteurize the milk as you filter or chlorinate the water.

Opinions That Work

To bring into being a society that will not countenance public spitting must ever be a major premise of any progressive anti-tuberculosis program; yet it is in this very respect that our voices have been weakest and we have fallen down most miserably. The very fact that in his ascent from savagery and barbarism man has assumed some strong opinions,—opinions that work,—about the propriety of public micturition and defecation assures me that he is capable of being educated regarding spitting.

We once made a brave and showy beginning,—if you call this method of approach education. In thousands of places all over the world we passed laws that sounded as if they meant business. Then we buried them deep in big books between other laws and had copies beautifully framed and hung high up in railway coaches and post offices and other such places; and then,—well, you know the rest.

I imagine that it was the dust kicked up by Cornet, and the barrage of vapors turned loose by Flügge and his band that blotted out our path and threw us off our base, and for the last twenty

years or so made us reach for a gas mask whenever we thought of a plague coming. They influenced our sense of proportion mightily and made us just a trifle careless about sputum. It is curious that, if sputum is dissected and further dissected, and worked out into many figures and the figures set down in rows of columns in a book we should turn pale at the terrific possibilities of sputum; while if it is whole and fresh and everywhere next at hand, this should be of relatively trifling importance. All this may be part of the workings of "science," but it has about it none of the savor of common sense, without which all scientific observations must remain as nebulous as if they had never been made. When I prove that I can produce tuberculosis by inoculation, I do not prove thereby that human beings are *commonly* infected by inoculation: I should not even make the suggestion; nor when I find bacilli in dust and cocci in droplets suspended in the air, have I in the least shown the *common* method of any infection of man.

At any rate, human sputum on our streets must go; and it is our bounden duty to work everlasting-^{ly} to that end until this happy day arrives. Picking out one day a year and on that day haling one or a thousand men before a magistrate and fining them a dollar each will not get us anywhere. Our program must be planned with the idea of never a let-up of propaganda. This propaganda should not, in fact, it need not, tell anything but the plain, unadorned truth: but let this truth be told. Don't insult intelligence. Don't make people tremble before mythical and lying cocci and bacilli that swoop relentlessly through the air with claws outstretched, fangs and tusks poised, and beetling wings. Such representations might be justifiable for people who believed in gargoyles and griffins, but they have no place in our time. Besides, a public that finds out that you resort to sensational exaggeration and untruth to strengthen your cause, will put it down as weak; and cannot be blamed for looking askance when you again stray into the narrow path of truth.

Without cessation, yet ever taetfully, we must lay the truth before the people. We must aim to get the sympathy of the officials and of all individuals. As a growing number of the latter take upon themselves advisory, corrective, and police duties, our official and professional labors will be made the easier; but it is we who must organize and direct this movement, with never a qualm of discouragement. The object to be achieved is without a single demerit: no cause can be stronger whether from the point of view of utility, of estheticism, or even of morals. For

these reasons it invites our very best efforts; and when these are applied it will succeed even beyond our utmost expectations.

Pathological and experimental data furnish us information upon which we may base other premises for a progressive program against tuberculosis. It is absolutely certain that only in very rare instances does a tuberculous infection from without proceed uninterruptedly to the development of a condition that we recognize as disease. Between any exogenous infection and the appearance of symptoms there is a longer or shorter period of latency, of quiescence, of maturation, of development,—call it what you will. I am not here to debate what has become almost a doctrine, namely, the development of adult manifestations from childhood infection, or to dispute whether one or many infections is the common lot of man. I state merely what I think has been definitely proved,—that few infections go straight on to manifest disease. In many instances, particularly in children, there may be, however, certain definite disturbances which although surely tuberculous are not generally recognized as such and which, therefore, are overlooked so far as their connection with tuberculosis is concerned. In many children and adults warning signals of a relatively obscure and intangible nature are frequently thrown out long before frank tuberculosis develops, yet this relationship to tuberculosis is only too often unthought of. There arise, therefore, several premises which we might fit into our progressive program. None are concerned with preventing infection, but all would aim at reducing morbidity.

One of these premises would make it incumbent for us to arouse the medical profession to the significance of affections like phlyctenular conjunctivitis. This minor disease is quite prevalent, especially among children; and the weight of the better medical opinion is that it is nearly always a manifestation of tuberculous infection. In very many cases it may be the sole symptom; now and then it precedes the graver evidences by several weeks or months. As matters now stand, its tuberculous background is completely disregarded by the rank and file of physicians. It is treated as a minor and independent ailment of the eyes, whereas it should be treated as tuberculosis. There is no doubt that if its full meaning were appreciated and if a modified tuberculosis regimen were employed in the treatment of phlyctenular conjunctivitis, not a few attacks of undoubted tuberculosis and, consequently, a certain number of deaths would be averted.

We might indulge in the same prediction if practising physicians as a class were alive to

their full obligations when consulted for a variety of obscure constitutional conditions,—unusual nervous irritability, abnormal tendency to fatigue, chronic under-nutrition, obscure though slight anemia, etc. I am not now discussing the early diagnosis of clinical tuberculosis. As often as not, we cannot find enough to dignify the trouble with the term, tuberculosis; and as often as not the distemper is transient and passes over without special measures being directed against it. Yet in only too many of these cases the future explosion proves that tuberculosis has insidiously been getting in its work. Where a positive diagnosis of any disease cannot be made, I believe that these cases call for a modified tuberculosis treatment. The word tuberculosis should never be mentioned to these patients, except by way of warning them of eventualities that may occur: but a therapy that approximates that for tuberculosis would undoubtedly save much illness and many lives.

Reach Presumptively Tuberculous

Let us use the term "presumptively tuberculous" as expressing that common condition of ill defined lack of health, where the balance between quiescence and activity of infection is adjusted with exquisite delicacy. If then we could drive it home to every physician that he should handle the presumptively tuberculous woman's pregnancy, parturition, and puerperium just a little differently from those of the ordinary woman, or that he should treat the acute infections of all presumptively tuberculous patients a bit more conservatively than is his ordinary habit, there is no doubt that we would contribute much to the reduction of tuberculosis morbidity and mortality. All education of this kind is a highly practical and productive method of combating tuberculosis.

We come now to establish a major premise of the first order, one of such importance that it takes rank with the elimination of public spitting; yet, unlike the latter, it is not directly preventive, but is aimed at the reduction or abolition of morbidity.

This premise is based on three facts, all of which are perfectly well authenticated. They may be stated as follows: (1) infection is almost universal, yet morbidity is relatively very low; (2) a long interval elapses between infection and the manifestations of disease that may result from the infection; and (3) the manifestations of disease are not uncommonly ushered in or precipitated by collateral events in the life of the individual.

In other terms, something besides mere infec-

tion is necessary to the clinical expression of infection. Morbid infection depends not so much upon infection as such as upon non-specific contributory factors. Inasmuch as almost all of us still go about our daily business infected yet healthy people, and because it is tuberculous morbidity that is really responsible for all the evils of tuberculosis,—if in every case infection could be confined it would give us little or no concern,—perhaps our most important practical task is, for the time being at least, to accept infection as part and parcel of the normal make-up of men, and to lay the emphasis on preventing morbidity. In my opinion, so long as the present situation exists, this is the heart of any conceivable progressive program; and I should like to discuss this phase at some length.

Generalization Strictly Scientific

I might begin by reciting list upon list of particular things that make for disease once infection is established: of constitutional defects; of vicious habits; of abnormal customs and modes of living; of social, economic, and industrial conditions; of intercurrent diseases. Such a tabulation in this place would involve only a waste of time. If we are alive to the full significance of all clinical experience, we can at once hew our way through all confusing detail and assert with full assurance that *the contributory factors of tuberculosis morbidity include anything and everything that adversely influence the health of man.* Upon some such broad platform we must take our stand. Some such all-inclusive slogan must be our battle cry. Any less pretentious point of view will not fit the facts. The generalization is strictly scientific. It is certainly more so than to lay a preponderant and almost exclusive emphasis on this or that specific factor, and undoubtedly less likely to create a false perspective and bring on uncomfortable days of reckoning, when, while we do away with one or another contributory factor, tuberculosis still flourishes and the people ask us why.

Along comes someone and tells us, "Tuberculosis is a disease of under-nutrition. Give every man sufficient food and it will disappear." Certainly lack of food may play its part in awakening infection into life; we will grant that much, but when these "one track minds" put side by side columns of diminishing calory figures and increasing tuberculosis statistics they do not prove their case one bit. They seem to forget that there are underlying factors that as a rule make for insufficient feeding,—poverty is surely a most prevalent one,—and that these same underlying factors, poverty again, for instance,

may bring in their train evils of many kinds; improper housing, inadequate clothing, abnormal work and fatigue, unusual exposure to the elements and to every variety of infectious disease. Why then be so cocksure that it is specifically the lack of food that is getting in its work? The same mental antagonism is likely to greet the positive assertion that alcoholism has a direct influence on specific resistance to tuberculous infection: certainly figures that show an unusual amount of consumption among alcoholics do not prove the proposition. Alcoholism presupposes and definitely produces irregularities and exposures of many kinds and it is a most potent breeder of poverty: wherefore, tuberculosis because of alcoholism. But do not expect too much from the abolition of alcoholism unless many other things go with it.

I realize that much of this argument may seem like mere quibbling. But the point I want to make is that we should be very careful not to give the people the wrong impression. By picking out two or three or more superficial concomitants of a high tuberculosis morbidity and hammering away at these with a disregard of the larger field, promising the while vast and mighty results, we are surely getting ourselves into trouble; and, by not getting at the root of the matter, we are not likely to make as much headway against the disease as we might. The people are not likely to be responsive interminably and run from one anti-tuberculosis method to another, while as one becomes disposed of two or more crop up. You know and I know that there are scores and hundreds of determinants of tuberculosis. Then let us carry this news to the people to the point of impressing them with it. Let us, of course, continue our efforts against particular evils; it can be only by paying attention to details that we can affect the mass; but behind and ahead and on all sides of specific measures let us always project the larger vision, —*manifest tuberculosis is due to anything and everything that adversely influences health.*

Cumulation of Non-Specific Factors

If you grant the validity of this statement, it follows with certainty that any fruitful anti-tuberculosis program must involve nothing less than a thorough understanding of what has in general come to be known as public health and an active participation in it. The tuberculosis worker and propagandist can no more stand aloof from all the manifold currents that determine public health than can the public health worker neglect tuberculosis as a prime and almost predominant factor in his field. The tuberculosis

worker who confines his interest and attention to what may be called the specificities of tuberculosis, the tubercle bacillus, its habitats, and its habits, and particular measures directed against it and its effects; and whose eyes are closed or unresponsive to all the non-specific factors,—the inefficient teeth and throats of children, the faulty habits and environment, altogether apart from such things as lunger blocks and dangerous coughers and spitters, of the human being, the excesses of ordinary existence whether they be excesses of labor, of play, or of the passions,—that summon tuberculosis morbidity to the forefront, is not serving his cause well. He is merely pecking away at the flanks and commanding an attack which, no matter how showy and noisy its launching, can lead only to discouragement. He has failed to grasp the location and nature of the enemy's stronghold.

For the center of this whole thing that we call the tuberculosis situation is as fixedly and immutably non-specific as the cause of pathogenic tubercle is specific. Transcendent though the event of the disclosure of the tubercle bacillus was, its results have not been entirely happy. The knowing that there is such a living mite has now and again served us a scurvy trick. It has more than once made of our campaign a mere tournament against the bacillus, while we have forgotten or neglected the fact that morbid tuberculosis, the prevention of disease—of symptoms, of functional disability,—is our real objective. And this thing to be aimed at, this tuberculosis come to light, is in every particular the cumulative result of several or a host of non-specific factors or determinants that have operated for days, for years, aye, even for generations.

In its climb from Lazarus to Dives a family probably does not change greatly so far as concerns the numbers of tubercle bacilli that are embraced from without by the individuals of each generation, but we can predict with more than a little assurance that the incidence of morbid tuberculosis in the family will vary. In like manner it may take a hundred years for Dives of a positive Pirquet test to be brought down to Pirquet-positive Lazarus; and in these hundred years little happens to bacilli, yet much will happen to morbid familial tuberculosis. If you get my meaning you will have grasped the first and central principle of any and every attack on tuberculosis that may convey a promise of success.

As we approach the conclusion of this thesis, let us look this whole thing in the face.

The medical and scientific premises for a successful program against tuberculosis have, with

one or two exceptions, been privileged knowledge for twenty years. I have mentioned only a few of them, a few which I consider of major importance and of a character that invites their practical application. If you expected me to tell you anything new or novel that has emerged from the welter of bed side and laboratory study I am sorry that I have been obliged to disappoint you, for the fact remains that, save for the readjustment and crystallization of our ideas concerning infection and morbidity, nothing of the first importance for our present purpose has been disclosed since 1900.

But the mere statement of a premise is a sorry and unprofitable pastime, and may be a long way from the attainment of conclusion; and it is only by the proper application and working out of premises that proper conclusions may be reached. It is really our business to deal less with the erection of premises and to devote most of our energy to putting them to work. I really am growing a bit weary from observing our professors storm our gatherings with a deluge of papers on early diagnosis, and then go back to their classes and continue to graduate men who know nothing about early diagnosis or just little enough to make them smugly dangerous. There is enough on record about the desirability and necessity of undergraduate instruction in tuberculosis to guide successfully the veriest tyro; yet today in the United States there does not exist a single department of tuberculosis that can adequately instruct all the students of the school. There is to my knowledge not a single first class general hospital that knowingly admits cases of pulmonary tuberculosis to its wards,—“because of the fear of infection,” they say; fit concepts for 1885 or 1890; yet these same hospitals will crowd every type of acute pneumonia and typhoid fever with every variety of acute and infectious disease. You and I contribute to the continuance of dirty milk and promiscuous spitting and inadequate housing, and the social and industrial standards that keep up tuberculous infection and morbidity and which are at the root of these. We either fail to see that, so long as the health of the people is so profoundly depressed by their social environment as it is to-day and always has been, no devotee or practitioner of an improvement in public health can be an advocate or adherent of the social *status quo*; or, seeing this, we do not act because our motives are directed by some to us larger or more personal considerations.

We will get the grip on tuberculosis when we create a universal and correct public sentiment concerning it,—then, and no sooner. Of public health, we may say the same thing. Our task

as professionals in the field is to remain the professionals, yet to become less professional and more human. To attain results, never was an activity in the world quite so much in need of the human touch as is the endeavor to promote the public practice of hygiene. To exhibit pictures of bacteria and cross sections of the human torso and columns of figures to the dweller of the tenement whose belly cries for food and whose eyes are heavy with smoke and dirt is brainless business, busy though we seem to be. To show this man how his surroundings may approximate yours and *to prove to him that you are working with him to make them so* is making progress. The inventor of the glass window probably did more for public hygiene than all the millions of physicians who preceded the period of the invention. Similarly, the man or company of men who can bring about conditions of life that will ameliorate existence to the point of promoting public health will do more good than all pure bacteriologists, pure chemists, and pure statisticians, past, present, and prospective. When we train physicians, we should train men first, and repositories of morbid phenomenology second. When we initiate public health workers into the mysteries of their subject we should develop the sympathies,—that sympathy which Terence has immortalized,—first, and technical aptitude second.

Make Life Less Hazardous

I would not for a moment have you think that I am trying to deprecate study, or the value of study of any kind. I am merely trying to give detached study its proper place in the scheme of things. The study of phenomena will always attract a most unselfish side of man's nature and will enlarge the vision and capabilities of the race. What I have in mind may be stated somewhat as follows: that while much of our knowledge of bacteria must be got together in laboratories and altogether apart from the interests of the crowd, it is on the social mass and largely through and by reason of the character of the social mass that bacteria produce their effects, and that, therefore, in attempting to influence these effects in any far reaching way, we must work from the angle of changing the individual and, therefore, the social point of view.

There is an old saw that nothing is so hard to change as the habits and customs of a people. This may be true; but I have always had a sneaking idea that the maxim was highly debatable unless we introduced the reservation, "provided its environment is not changed." If, therefore, a scheme for the control of tuberculosis that is

based on changing the social point of view were set down as impossible because it premised changes of habits and customs I would refuse to be put out of countenance, for the simple reason that it is environmental change which is the thing we must aim for. We might just as well look at the situation squarely. I think we will all agree that a fixed social environment means a fixed tuberculosis standard. If, therefore, we are to influence tuberculosis we must in some way or other bring about an alteration of social environment; and, as members of any body that is making an attack on tuberculosis, that is exactly what we are here for,—that and nothing else, whether we admit it or not. It is time to change the emphasis which only too long has been laid on the sophomoric and unpleasant, though occasionally necessary, exercise of chasing the "lunger" about the block, to the real work to be done, namely, that of reducing illness by making life less hazardous.

How are we to go about this real work? The sum and substance of our task is that we must carry tuberculosis to the people, to all the people. And we should remember that in so doing we shall be laying before the public practically the entire field of public health. There can be little doubt that tuberculosis is or should be the hub and center of the whole public health movement. There is more than a presumption of plausibility that it should be made the pivot on which almost all good health measures turn. Whatever makes for better conditions as regards tuberculous infection and disease, tends with a very few exceptions to reduce the incidence or deleterious effects of all other diseases. A community of no tuberculosis at once presupposes a community of cleanliness; of temperance and sobriety; of adequate light, space and air, both within and without its habitations, offices and factories; or labor enough for all; of economic and industrial overstrain for none; of opportunities and facilities for the rational employment of leisure; of an intelligent and enlightened medical profession to correct the disabilities of man; of a strong and sympathetic citizenry with an advanced point of view. "Idealistic, Utopian, quixotic, crack-brained," you say; "there is human nature in the way,—egocentric, self-indulgent, prejudiced, uncooperative, etc., etc." Oh, well, maybe so; but take a look down the ages, and perhaps you will find that to-day we are living in a society that was idealistic to the thinkers of Plymouth and Jamestown. Perhaps, too, what is Utopia to us may be the common state of tomorrow. They must be thinking these things right now in your neighboring city of Framingham; and I am sure that, if they

search the depths, they will, when their work is finished, speak to you in a language something like that which I have used above.

Take tuberculosis to the people, and, of necessity, you must preach the doctrine of all good health, and the way to get there, to the people. But when I say the people, I mean *all the people*. For any program to be even measurably successful we must bring about a thorough vulgarization of our knowledge of tuberculosis. The truth must be told and the remedies must be made universally common knowledge. Once appreciation of what is what dawns upon the intelligence of the man of Wall Street, the ranchman of the Texan plain, the Slovak of the coal-breaker, the bent and cross-legged needleman of Hester Street, the people will begin to apply the remedy. If the remedy means the employment of a mechanism through political intervention, let the people take care of this phase. I do not believe that, as public health bodies or officials, we should ever mix actively in political movements, except in a defensive way. If short-sighted, venal, or selfish politicians attempt to undermine ground that has already been gained, then we should fight back and lead the people to the attack; but, to attain reforms that may at any time be non-existent, we should never become involved in all the manipulations, jockeying, and jumbling of issues that characterize the methods of party politics. We dare not court disaster in this way. We must keep our skirts clean; and, with a clear eye, crystallize our objective; and our one and only purpose in propaganda must be to work through publicity for those conditions that mean less tuberculosis. Then, with full knowledge, the people must assume the responsibility of action,—strike where it may. This position and this position only, inasmuch as our status is quasi-public or political, we can defend against all attack.

Publicity and Tuberculosis

Tuberculosis,—public health,—for their programs are identical, must achieve a publicity such as heretofore has probably never even been dreamed of. Our organizations must be enlarged ten and a hundred fold, and in every hamlet the preacher of public health must be as familiar and active a figure as the school teacher, or the friar in the lanes of old Quebec. We must enlist every newspaper syndicate to our cause and have them day in and day out lay the facts of disease and its prevention before their readers. Our leaders in tuberculosis must lay aside their "ethical" scruples, come down to true and effective simples, and become lay preachers through the press; for the time has about arrived when we should take

the writing of newspaper medicine out of the hands of charlatans and of hack writers who have to a certain extent preëmpted the field and who have no nobler motive than self-advertisement or the lust for money.

Misinformation Through the Press

The very fact that every newspaper carries as "feature" matter a "health" column for the instruction and entertainment of its readers shows at once how hungry the people are for information on how to keep well. We all know of what a dubious nature most of this health news now is and what more dubious motives have impelled the writing of all but a small fraction of it. Yet we sit supinely by, behind all the professionalism that hedges what we should be and really is the most humane and most human of activities, and allow this misinformation to go on. We all know how to prevent infection and disease, yet for the most part simply keep telling each other about it, and make but feeble efforts to put this knowledge where it will do the most good, that is, feeble compared to what we could do.

I can go further and affirm that it is probable that the newspaper syndicates would aid wholeheartedly in the right kind of a campaign. In fact, within the last month I have been told by the head of a prominent syndicate that if the right people in tuberculosis were interested, practically all the large syndicates could be got to go before the people with the subject and make it as much a part of their daily lives as any chief topic of the day.

I once more, therefore, come back to the point where I started, the point that I have more than once repeated in this address.

We professionals may know and know things. We may plan and plan and plan things. We may do many things: pasteurize milk here and there; enact laws regarding spitting; here and there invade a home and more or less forcibly make a consumptive conduct himself with some regard to decency and safety; hold exhibitions that reach perhaps 1 per cent of the people and only too many of these already afflicted, and come to learn how they *might have* escaped tuberculosis; provide schools and refuges for consumptives, or imprison them; make early diagnoses; talk about instruction and research, yet fail to endow them. Nearly all of these are based on correct medical and scientific premises and serve a purpose; in specific instances and at specific times they prevent infections and spare from illness and death. But all are merely incidental to a real program against what has become as much an integral part of civilization

as any universal custom or habit. I would repeat that tuberculosis, when associated with the matter of a program against it, cannot be considered apart from the society in which it exists, and its real conquest must originate in the demands of the whole people that it be done away with; and these demands will never be made until everyone appreciates the situation. We may pile premise upon premise, but the task is thankless and wasteful unless we teach and preach incessantly the premise to the world. To do this effectively is our work. Vast and tremendous? Yes; but so is tuberculosis. Impossible? To matter-of-fact minds, to timid natures, to men easily discouraged and of slight tenacity, yes; to romantic and enthusiastic, yet thick skinned individuals, no.

Lead Into Ways of Health

Let me now become really earnest. Pardon the personalness of a confession, if I make one. In this city I sat for five of my best years under Williams and Manatt and Allison and Greene and Mead and Gorham and Tower. I sat at the feet of others, several of whom were like the men I have mentioned by name. These taught, not by rule of thumb, not by the glorification of fact, not by the worship of method and technic. They taught by inspiration. They taught Latin and Greek and German and biology as things that had to do with the living of life, and the spiritual and physical development of man. I remember not a thing of the technicalities of the *Odyssey*; but the place of the Ulyssean character in the world remains ever green in my memory. I can recall but little of what I learned here about the actual anatomy of the frog; but the fact that there is a relationship between the frog and the human being was put to me in a way that I have often profitably dwelt on since.

The years have since taken me into places where my day is largely taken up with instruments of precision and with the controlled exactitudes of phenomena,—with microscopes and test tubes and rabbits and guinea pigs and tubercle bacilli and such things. Little by little my specific function has become that of trying to learn something about the nature of tuberculosis. Once in a great while I think I have learned a new fact; and then with full force there surges the query, "What is its place in the larger field, in the conquest of consumption?" "The conquest of consumption,"—a subject that engages much of my thoughts; and, whenever I brood over it, after all the fringes have been cut away, as the matter seems to take shape and stand out in the fog, I always find myself thinking in terms like these: —If I had my way, if I could so order it, I should

call to me my best and most sympathetic students. And I should say, "Here are the facts, —the premises. We have found them out here; but, confined here, they are useless. Go now out into the world and lay them before the people. Go not as Republicans or Democrats, not as individualists or communists, not as scientists or physicians. Go as *men* with a theme to teach and preach. Go with only one idea, and let this idea be the leading of man into the ways of health. Let the method be one of persuasion. Point out the things that man must do to achieve freedom from disease; and in this demonstration let nothing deter or divert you. Follow the trail wherever it may lead; and be not fearful of the consequences. You have only one responsibility, and this is the achievement of better health for man; and in this, the holiest, most unselfish, and most blessed cause that a human being can enlist in, you need suffer no misgiving concerning anything else that may occur in or because of the process of achievement."

PUBLIC HEALTH ASSOCIATION URGES EXTENSION OF MEDICAL SERVICE

Among the resolutions of most significance adopted by the American Public Health Association at its Forty-seventh Annual Meeting in New Orleans recently, were those urging the enactment of legislation under which provisions may be made for the correction of remedial physical defects by physical training; urging the appointment of committees in the several countries represented in the Association by their Federal Governments to study existing methods for preservation and improvement of the health of the people, such as hospital facilities, public health activities, charitable institutions, and compulsory health insurance, with a view to reporting some adequate plan for coordinating already existing activities and for extending the application of scientific and social agencies for accomplishing the desired ends; favoring legislation for increased compensation for officers in the United States Public Health Service; urging that a national medical examination week be appointed during the month of May, 1920, with a view to arousing the people to the necessity for periodical physical examinations; recommending that measures should be taken to assure for the future a National Health Program and a coordinated Federal health administration, and commanding the work of the United States Army and Navy in combating venereal diseases during the period of the war, and offering the active cooperation of the Association officers, members, and Committee on Venereal Diseases in promoting the Federal campaign against these diseases.

The officers elected for the coming year are: President, Dr. W. S. Rankin, secretary North Carolina State Board of Health, Raleigh, N. C.; vice-presidents, John Armyot, head of Canadian National Health Service, Ottawa, Canada; William H. Robin, superintendent, City Board of Health, New Orleans, La.; G. H. Sumner, retiring treasurer, Des Moines, Ia.; secretary, W. H. Hedrick, secretary American Public Health Association, Boston; treasurer, Lee K. Frankel, retiring president American Public Health Association, New York.

A "COME CLEAN" LECTURE

ONE of the features presented before the meeting of the American Public Health Association in October which is unusually well calculated to carry the message intended was the "Come Clean" lecture by Maj. Leonard G. Mitchell, D.C., U.S.A., a summary of which is made in this report. Disease prevention through the proper care of the teeth is urged in this lecture, illustrated by a three reel picture designed to teach oral hygiene. The picture is the outgrowth of oral hygiene lectures delivered to the officers and men at the Army Medical Museum.

A Dramatic Story

Private Tom Merrill as the center of the picture is being ridiculed for brushing his teeth. Some of his buddies hide his brush, and a fistic encounter results after which Tom explains why he takes such good care of his teeth. Views of several wards at Walter Reed Hospital are shown, including cases of joint arthritis with swollen joints, heart disease, and appendicitis with complications, growing out of neglect of teeth.

The picture then takes up the scientific part, showing how and why infection from pyorrhea and abscessed teeth reaches and infects various parts of the body, producing various diseases, the infection being shown on its way by the use of animated drawings.

Surgeon General Ireland and chiefs of various sections of the Army Medical Department witnessed the first showing of this picture and it carries their hearty endorsement. Copies of the films will be sent to camps and be made available for organizations desiring to use them in campaigns for the care of the teeth.

Strength the Objective

"The United States Government, through various departments, is now in the midst of a nationwide campaign of education, the purpose and scope of which is rehabilitation and reconstruction in several lines of endeavor to the end that we may become a more virile and stronger people. This campaign surpasses any like effort in the history of our Country, not even excepting the days following the Civil War. Our part in this great work is the conserving of health by combating preventable diseases; for good health is the logical and natural foundation upon which we may hope to erect the superstructure of contentment, happiness, prosperity, and natural greatness.

"The Surgeon General of the Army, and an in-

creasingly large number of America's leading surgeons, pathologists, and research men now recognize the diseased mouth and teeth as causative factors of many of the serious diseases of the body.

"When a subject, such as mouth hygiene, is presented for our consideration, overthrowing our preconceived ideas, conflicting with custom, or doing violence to our early teaching, or the lack of it, we are conscious of a certain degree of opposition, which is based upon a prejudice due to a lack of knowledge of the subject, or a general apathy. It is well, therefore, to state at the outset that we are now dealing with one of the most serious problems which confront the American people today—the unclean and diseased mouth in its relation to these systemic diseases. The three-reel picture we are about to show was made at the Army Medical Museum by direction of the Surgeon General of the Army, with a view of impressing upon the minds of our soldiers the very great importance of freeing the mouth of all infection and maintaining strict mouth hygiene. (Picture shown here.)

"It is quite impossible to show clearly and adequately in the picture all you should know about mouth hygiene; we will, therefore, briefly enlarge upon and emphasize a few of the more important features in order that you may appreciate their importance.

Causes of Constricted Arches

"The very early training of children must not be neglected, if they are to have strong teeth and good health. Thumb-sucking and the use of a pacifier can not be too strongly condemned as they cause constriction of the arches and nasal passages, resulting in mouth breathing, adenoids, enlarged tonsils, and irregular teeth, with their long train of systemic ills which will materially affect the general health and life of the individual.

"The deciduous, or first teeth, must be saved until the normal time for them to be replaced by the permanent teeth. These first teeth provide the required development of the jaws for the permanent teeth, thus preventing irregularity of the permanent teeth. The first teeth also guide the permanent teeth into their proper alignment and position.

"The first permanent molars, which erupt at the age of six, are the most important of all the permanent teeth, yet are the most neglected. The loss of one or more of these teeth means loss of

normal occlusion, inability to chew properly; the tipping into the space of the second molar, especially when the third molars, or wisdom teeth, erupt. This condition is also responsible for pyorrhea later in life.

Give Teeth Some Work to Do

"Children should have plenty of coarse food which requires much chewing; also food, such as milk and eggs, which contains plenty of lime. The teeth and surrounding tissues require exercise the same as other parts of the body.

"The picture quite clearly shows the formation of a cavity and how, if neglected, the nerve becomes involved, and an abscess forms; also how various parts of the body of the individual are reached and become diseased; but it does not sufficiently emphasize the danger of the so-called blind abscess. By this we mean the abscess which does not open through the gum to the surface or cause pain. This form of abscess will occur when the dental pulp or "nerve" has been removed and the canal imperfectly filled. The formation of pus in such an abscess is so slow that the blood circulation can absorb it and it is carried to all parts of the body, producing no swelling of the gum or pain about the tooth. In fact, this tooth may do its work year after year without pain or inconvenience to the individual, yet establish a serious infection in some remote part of the body, as shown in the picture. This process being painless, it is insidious and, therefore, dangerous.

The X-Ray an Adjunct

"The x-ray is proving that a very small per cent of root canals are properly filled when the nerve is removed from a diseased tooth. Indeed, so small a percentage is it that we are ashamed to tell you. However, it prompts us to say in all seriousness, if you have a tooth from which the nerve has been removed, you should by all means, have that tooth x-rayed and see for yourself that the canals are well filled and that there is no infection.

"A dentist can no more do root-canal work without the use of an x-ray equipment than can a physician successfully combat a fever without the use of a thermometer. At Walter Reed Hospital, Washington, D. C., where several of these scenes were taken, there are on record many cases where these blind abscesses, resulting from poorly filled root canals, have been the cause of serious diseases of the body.

"Concerning pyorrhea, very little need be added to what you have seen on the screen except to say that this dread disease is one of the most common and the most destructive that we have to fight.

Its causes are many. Among the most common causes we find: lack of cleanliness, food deposits allowed to accumulate and decompose about and between the teeth; lime salts allowed to accumulate; poorly constructed crown and bridge work, so food deposits may find lodgment under the edge of the crown or bridge where the brush can not reach it; irregular and malposed teeth, due to early loss of teeth; poor occlusion with opposite teeth, etc.

"The loss of teeth from pyorrhea is a serious one. The bone-process is so destroyed that there is little left to hold plates; therefore, it is quite impossible properly to masticate food. We exert a stress of from 100 to 300 pounds in ordinary chewing with our natural teeth, while with well-fitting plates the stress is but 50 pounds. If Nature designed our chewing mechanism for a stress of 500 pounds, how can we prepare our food for assimilation with a stress of but 50 pounds? This abnormal tax on our digestive system must make serious inroads on our vitality. However, it is infinitely better to go without teeth and without plates, if necessary, rather than retain diseased teeth if the pyorrhea is beyond curing.

Cure by Cleanliness

"Pyorrhea can be cured and it will stay cured if treated in time and the teeth are kept clean. But remember this: the tissue Nature builds up in these pockets where the bone has been destroyed is not as dense as was the original bone structure; therefore, what caused the disease in the first instance will bring about its return easier than it originally caused it.

"In the light of modern scientific research we must take cognizance of these established facts. Our people must be taught right and proper methods of living if we are to increase the general efficiency of the race and render coming generations more impregnable to disease. Our state legislatures should provide adequate protection for society against incompetent and unscrupulous dentists so that a license to practise is evidence to the public of efficiency, skill, and honesty. The physical welfare of the people should take precedence over all other matters. When the people demand this protection it will be granted."

Clinical Congress Elects

The Clinical Congress at its annual meeting October 23, chose the following officers for the coming year: president, Dr. George E. Armstrong, Montreal; vice-presidents, Dr. Rudolph Matas, New Orleans, and Horace Packard, Boston; regents for term expiring in 1921, Dr. Alexander Primrose, Toronto; Albert J. Ochsner, Chicago; George W. Crile, Cleveland; Harvey Cushing, Boston; George L.

de Schweinitz, Bethlehem, Pa.; and William J. Mayo, Rochester, Minn.; for the term expiring in 1922, Dr. John M. T. Finney, Baltimore; James B. Eagleson, Seattle; Charles H. Mayo, Rochester, Minn.; J. Bentley Squier, New York; Dr. Walter W. Chipman, Montreal.

SCHOOL MEDICAL INSPECTION

BY TALIAFERRO CLARK, Assistant Surgeon General, United States Public Health Service*

It is very desirable that communities, and especially the responsible officials, should take stock of resources for the health supervision of school children. Owing to inevitable adjustments that are now taking place in the national life as a result of the war, and especially in view of the changed economic conditions, the increased cost of the necessities of life, and the strong appeal of greater remuneration in other fields to those engaged in health activities, the importance of adequate health supervision of the children of the land is emphasized as never before in the history of our country.

Advantages of Health Supervision

The health of the growing child determines largely the health and bodily vigor of the grown man. The community, therefore, can take no more important step to insure the future efficiency of its citizens than that of growing healthy children. In the present state of society an intelligent supervision of the health of the children during the period of school life is probably one of the most potent measures for this purpose and is recognized as such by law in an increasing number of the states of the Union. This is especially true since in but a very few fortunate communities is any attention whatsoever given to general health supervision of children during the impressionable pre-school age covering the period from two to five years of age, inclusive.

Intensive studies of the physical conditions of children in many places have shown large numbers of them to have physical defects which were previously unrecognized and unsuspected. Many of the defects thus shown are preventable and remediable. Their persistence results not only in reduced individual efficiency, but also, in the aggregate, in reduced national efficiency, as is so clearly shown by the high percentage of those found unfit for military service in the physical examinations conducted under the selective service law.

The conditions under which children assemble in school, and not the school itself, are largely responsible for much of the sickness contracted during the period of school life and for the persistence of physical defects. The control of adverse causes during this period not only exercises an immediate beneficial effect on the health of the children, but serves most effectively to teach them the principles of personal hygiene, the non-observance of which is now believed to be mainly responsible for the large annual increase in the number of deaths from degenerative diseases that occur later in life.

Experience shows that the failure to prevent and correct impairment of hearing and vision and to detect abnormalities of color perception, to secure dental attention, to alleviate postural defects, to place the normal child in an environment best suited for physical development, greatly restricts the range of industrial, business, and professional opportunity in adult life. Moreover, a number of defective children are unable to take full advantage of their educational opportunity. They fall behind in

school work, become discouraged because unable to keep pace with normal children in their classes, and ultimately quit school poorly prepared for useful citizenship. It is of prime importance to the community, therefore, to take cognizance of these possibilities in order that steps may be taken to prevent them. Furthermore, the control of the communicable diseases in the community can be accomplished more effectively when undertaken in connection with the medical inspection of school children. Altogether, the loss of life, the impairment of hearing and vision, the tendency to degenerative diseases caused by neglect of personal hygiene, and the loss of time in school work render it highly desirable from the economic standpoint alone to inaugurate a measure so potential in the control of the communicable diseases.

System of Health Supervision

An effective system of health supervision of school children should provide (1) for the thorough sanitation of all buildings used for school purposes; (2) for the intelligent supervision of classrooms to detect and correct con-



Fig. 1. This decorated float which appeared in a parade on Commencement Day at Kinston, N. C., formed a novel advertisement of the benefits to be derived from Health Inspection.

ditions injurious to the health of the pupils as soon as they arise; (3) for the full-time services of medical inspectors qualified to discharge the sanitary and medical duties of the school physicians; (4) for the full-time services of school nurses; (5) for facilities for dental inspections; (6) provisions whereby necessitous children may receive free treatment best suited to their needs; and (7) for a thorough mental examination of all children who fail to progress normally in schoolwork. Objections have been made to health supervision of school children and the treatment of their physical defects on the ground that such measures discriminate against the regular practice of medicine, encourage pauperism in parents, raise the tax rate, and tend to bring about a lowered sense of responsibility on the part of parents in respect to the health of their children. The experience of countries and communities wherein these measures are in full force does not substantiate these claims. It has been found that the more regular attendance of children at school brought about by competent health supervision, and the educational effect on parents of such measures when applied to their children, reflect in time so advantageously on the community as to more than compensate for the expenditures involved in such supervision.

The demands of a reasonable medical inspection of school children are met by the following observances: (1) to examine for the presence of physical or mental defects which make it inadvisable for certain children to attend

*Reprint from the Public Health Reports, XXXIV, No. 36, Sept. 5, 1919, 2013.

school; (2) to measure and weigh all children to determine the average physical development by sex and one-year age periods, and the utilization of such standards as an index of nutrition and as a guide to the discovery of harmful causes in the case of children who do not develop normally; (3) to discover, remove, and prevent defects of dentition, hearing, posture, and vision that hamper children in schoolwork and retard their physical and mental development; (4) to aid the health authorities in the control of communicable diseases.

Requirements of Medical Inspector

The minimum requirements of an acceptable school physician are: (1) that he should devote his full time to the supervision of the health of school children; (2) that he should be skilled in medical diagnosis, able to advise with and assist the family physician when it is so desired; (3) that he should have a knowledge of bacteriology sufficient to enable him to take cultures, detect "carriers," and otherwise assist the health authorities so that it may be unnecessary to close schools during epidemics of communicable diseases; (4) that he should be well grounded in the principles of personal and general hygiene, and have the ability to apply them to school purposes; (5) that he should be competent to prescribe suitable exercises in individual cases to overcome postural defects, and advise with regard to regulated group exercises designed to promote the best physical development of normal children; (6) and that he should notify all parents of the presence of physical defects in their children as soon as these defects are discovered and make reasonable efforts to have his recommendations carried out.

In the selection of a school physician due regard should be given to his ability to direct the seating of children, to make observation of atmospheric conditions in class-

rooms, to measure illumination and to advise in regard to changes necessary to secure the maximum of illumination with the minimum of visual discomfort, and finally to advise janitors in respect to the heating and ventilation of school buildings.

Private Practice Interferes

The employment of a physician engaged in private practice to devote a part of his time to the medical inspection of school children is not productive of good results. On the average it requires the full time of a specially qualified physician to supervise effectively the health of 2,000 school children. Furthermore, the employment of a practising physician for this purpose is frequently the cause of jealousy and opposition on the part of other local practitioners that negative the efforts of the school physician.

One of the great drawbacks to the employment of a school physician heretofore has been the apparent unwillingness of the school and health authorities to recognize and clearly to define their duty in respect to school health supervision. Fundamentally, the duty of the school organization is to impart instruction, and this should include instruction in health through courses in personal and general hygiene adapted to the needs of various age-groups and by the organization of classes in physical training.

On the other hand, the function of the health department is preventive and corrective, and as applied to school health supervision should include the medical examination of the children for the detection and removal of the hampering physical defects and for the control of communicable diseases, as well as supervision of the sanitation of the school buildings and grounds and playgrounds. In fact, the measure of the mental and physical efficiency of the children of a community will be largely proportional



A school much above the average rural school of Tennessee.



Types which indicate degrees of under nourishment.



Fig. 2. The nurse has just finished the physical examination and the dentist has completed free dental treatment for these groups of Pender County school children. Both nurse and dentist were sent out free by the Department of Medical Inspection of Schools of the North Carolina Board of Health.

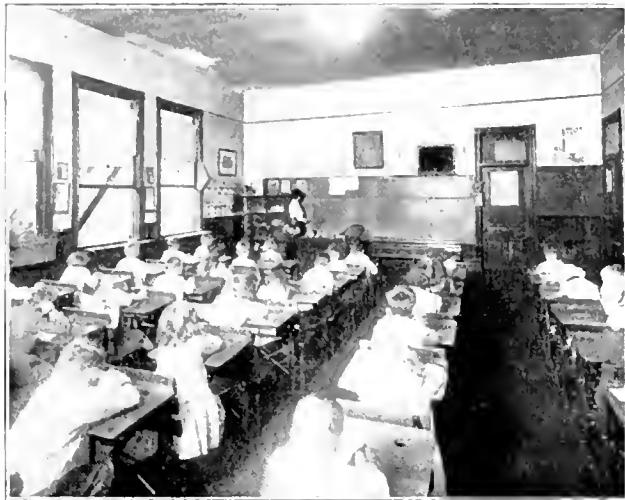


Fig. 3. The interior of a school room as it appears to the child with normal vision. Proper health supervision which would include examination of the eyes would demonstrate whether or not each pupil sees each detail clearly, or whether it appears to some as in Fig. 4.

to the completeness of the cooperation of the two responsible agencies in this work.

Dental Attention

Dental defects constitute the most numerous of all defects found during medical inspection. The percentage of children in need of attention to the teeth is highest among those from five to eight years of age, the percentage gradually decreasing in successive older age-groups. It is now recognized quite generally by the medical and dental professions that defective teeth are responsible for serious disturbances of the general health. Especially is this true of "rheumatic" affections, heart disease, and gastric disturbances. No system of health supervision of children can be thoroughly effective, therefore, that does not secure correction of dental defects or fails to instruct parents in dental prophylaxis.

All children should be encouraged to visit the school dentist as he is employed for their especial benefit. The time will come when the school dentist will be considered just as necessary a part of the school system as the school principal himself.

In school dental work, if it is ever impossible to care for all the teeth of all the children, the teeth of the children in the first two or three grades should receive attention first, and thus after awhile the task will have been accomplished for all children.

Duties of the School Nurse

The school nurse should be directly responsible to the school physician for the proper discharge of her duties. Her activities should supplement those of the school physician and correlate with them. She should have sufficient training to carry out the routine treatment of minor ailments in necessitous children under supervision of the school physician; she should be required to visit the parents of ailing children, when necessary, to instruct them in the care of the sick and in the prevention of disease; she should "follow up" children recommended for treatment by the school physician to induce parents to carry out his recommendations in case of their failure to do so; she should from time to time visit children who have been excluded from school for purposes of treatment, to insure their return without undue loss of time; she should be required to visit children absent from school for three successive days from unexplained causes, and

in case of sickness make inquiry as to its nature in order to guard against communicable diseases. She should report the results of follow-up work to the school physician so that they may be properly recorded.

The importance of home visitation can not be too strongly emphasized, and the absence of such visitation interferes greatly with the efficiency of the agencies which look after children. When an inexperienced mother tries to carry out at home the advice she has been given, she frequently finds that she has either forgotten, or has imperfectly understood the directions, or she meets with an unanticipated difficulty which she does not know how to overcome.

The services of the school nurse may be advantageously used during the vacation period in infant welfare work, or in some other form of community health supervision.

Recording Results of Medical Inspection

Every child should be subjected to a rigid medical examination as soon as possible after first entering school. The results of such examination should be card indexed and filed in such manner as to be instantly available for reference. Immediately following the examination, the parents of the child should be notified, in writing, of the presence of physical conditions which require medical or surgical attention. Such notification should be supplemented by visits from the school nurse, and neglectful parents should be advised of the necessity for such attention.

The form used for recording physical defects and other information regarding the school children should be arranged to suit the demands of local conditions. In general, such cards should show the name and address of the child, the name and address of parents or guardian, the exact date of birth, the sex and nationality of the child, the height and weight, the physical defects at the time of the examination, and such other information as may be useful. The subject matter should be so arranged as to provide space for recording the results of reexaminations in succeeding years. Such cards should also indicate the treatment advised, the results of treatment, and the subsequent disposition of each particular case.

Dental defects should be recorded on a card of the same size as the medical-inspection card, and filed with it. Such cards may be conveniently arranged showing cuts of the



Fig. 4. Many pupils are considered dull in school when properly fitted glasses are all that are necessary to make them rival the brightest. How can one do a sum in arithmetic when the blackboard on which it is written looks like a fog bank and the figures themselves are invisible?

temporary and permanent teeth, with spaces for recording the results of dental inspections and treatment.

The notification blank to parent or guardian may be arranged as follows:

OFFICE MEDICAL INSPECTOR OF SCHOOLS

Parent or guardian..... Address.....
 A recent physical inspection of..... Name of child.....
 attending the..... indicates the following
 Name of school..... abnormal conditions:
 You are advised to take..... Name of child.....
 family physician, dentist, oculist, or to a dispensary for advice
 and treatment.....
 Medical inspector.....

In every case where the child is excluded from school on account of sickness or disability, the medical inspector should be required to notify, in writing, the parent or guardian, specifying the cause of such exclusion and stating explicitly the terms under which the child may return to school.

AN APPEAL FOR HUMAN EMBRYOLOGICAL MATERIAL

BY WILLIAM W. GRAVES, ST. LOUIS

In 1906 I observed certain malformations of the human shoulder-blade, and in contributions to current literature I have given them the collective name, "the scaphoid type of scapula," and pointed out some of its hereditary, clinical and anatomical significance.

Probably the most important observation connected with this type of scapula in man is its age incidence, that is to say, it occurs with great frequency among the young and with relative infrequency among the old. There appear to be two possible explanations of this fact: either (1) one form of shoulder-blade changes into the other during development and growth; or (2) many of the possessors of the scaphoid type of scapula are the poorly adaptable, the peculiarly vulnerable, the unduly disease susceptible,—the inherently weakened of the race.

I have attempted to answer these questions by seeking evidence in various directions and one of the most important of these has been a study of intra-uterine development of shoulder blades. My investigations in this direction have been limited by the material at my disposal, which has been inadequate for a definite solution of this phase of the problem. I am, therefore, appealing to physicians for fetuses in any and all stages of human development.

It is desired that the material, as soon as possible after delivery, be immersed in 10 per cent formalin in a sealed container, and be forwarded to my address; Metropolitan building, charges collect. Due acknowledgment will be made to those forwarding material.

INCREASED FUNDS FOR RESEARCH

The Rockefeller Institute for Medical Research announces an added gift of \$10,000,000 by John D. Rockefeller, making a recent acquisition of \$30,000,000 for the spread of medical education. This fund will not materially enlarge the scope of activities, but covers increased costs which meant either additional endowment, or a curtailment of activities.

AMERICAN PUBLIC HEALTH ASSOCIATION ELECTS RANKIN PRESIDENT



WILLIAM S. RANKIN, president, American Public Health Association.

Watson Smith Rankin, recently elected president of the American Public Health Association, is a specialist in public health work. He was born in Mooresville, N. C., in 1879, and attended the high schools of this town and Statesville, N. C., prior to taking up the study of medicine at the North Carolina Medical College, Davidson College, and the Medical College of the University of Maryland.

Following his graduation, he served as intern in the University of Maryland Hospital for eighteen months, afterwards taking a year's postgraduate work at the Johns Hopkins Medical School. Upon completing his postgraduate work, he spent six months as resident physician in the Obstetrical Hospital of the University of Maryland. During the succeeding thirteen months he served as resident pathologist in the University Hospital at Baltimore. For a time he was pathologist in the Medical Department of Wake Forest College, Wake Forest, N. C., and from 1905 until 1909 acted as dean of its School of Medicine. Doctor Rankin is a Trustee of the Wake Forest College and of the North Carolina Sanatorium for the Prevention of Tuberculosis. He is secretary of the North Carolina State Board of Health, and a member of several medical societies.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., Editor

SOME LATENT CAUSES OF RACE DEGENERATION

IT was an unostentatious malady [malaria] which dimmed the blaze of glory that shone around early Greece, until it faded away into the dark degradation of Hellenistic times.¹

The change in the character of the Greek and of the Roman peoples had commenced long before the culminating disasters which led to the destruction of classical civilization. It was, if felt at all, but vaguely realized. The cause was not even suspected.

Should we not ask ourselves whether in our time there is no insidious agent at work which, given time and unchecked course, may lead to degeneration of our race? Our inquiries would take two directions. First, do we know of any relatively new or increasingly frequent disease which might have such an effect? Second, are there any signs of such an action?

In answer to the first question, it is certain that syphilis will come first to the mind. It is comparatively new; it was insidious. Syphilis is now, however, out of the insidious class. We can fight it in the open. We know its cause; we possess remedies of considerable specificity and potency; we are at last allowed to speak frankly to the public on the subject. Whatever in the past has been the effect on the race of syphilitic infection, we have good reason to believe that much of its power for generalized evil will disappear in the near future.

But what of influenza? Our attention is more liable to be attracted to the striking dangers of its acute manifestations. Do we know that it leaves no disability behind?

The febrile attacks of malaria, the secondary rashes and tertiary gummatous of syphilis fixed the attention more than the cachexia and the temper-

amental changes due to chronic paludism, in the one case, and the remote nervous and mental lesions of the other.

We do not know, *pace* some bacteriologists, the cause of influenza. We have no accepted specific treatment.

Some historians affirm the existence of a physiological change in the race, occurring gradually in the early nineteenth century, a change involving greater irritability, leading to social unrest. Even the ability of our near ancestors to be three-bottle men, and to transact their business, and live to a hale old age, according to these authorities, has been lost; and the loss, they would have us believe, is one of the signs of a racial degeneration. However, this may be, we may well ask ourselves the questions:

Are our adults more irritable, less tolerant, and shorter lived, more subject to diseases of degeneration, than their forbears? If so, do the recurring epidemics of influenza have any share in the production of this condition?

MIDWIVES

SOME valuable discussions of the problem of midwives have been given to the public during the last few weeks. One of these is from a report by Dr. Chas. E. Terry, on sanitary and health conditions in Wilmington, in which he deals to some extent with the problem of regulating the midwives in that city. After stating the fact that the practice of midwives is general and is not adequately regulated, Doctor Terry puts the case thus:

If a physician from another state, although a graduate in medicine, and possibly highly skilled in his profession, should enter the state of Delaware and attempt to practise medicine, without first securing a license from the State Board of Medical Examiners, he would be prosecuted, and rightly so, even though he confined his practice to obstetrics. Any ignorant woman, however, of the

1. Jones, W. H. S., Malaria and Greek History.

type above described, has only to style herself a midwife to be permitted to assume the responsibility of life and death in the practice of one of the most complicated and difficult branches of medicine. It should be remembered that, while we are accustomed to consider childbirth a physiologic process, yet nothing in the field of medicine or surgery presents, at times, such perilous situations as are encountered in the practice of obstetrics,—situations wherein the utmost skill and the most expert judgment are required and wherein ignorance, neglect, or carelessness, may cause the loss of two lives.

After citing the dangerous practices which were found to exist, he says:

Many of the customs and practices of these women will not bear repeating and all of them would be ridiculous, were they not potential for such tragic effects on mothers and babies. Not a single one of the midwives visited showed the slightest conception of surgical cleanliness, so important in the prevention of childbed fever.

The remedy for the situation disclosed he suggests is to require midwives to register and to show sufficient elementary knowledge to fit them for their calling.

He urges further that they be forbidden to make certain examinations, and be required to call a physician in every complicated case. Further-

more, he recommends that every case of child-birth attended by a midwife should be visited by a trained public health nurse within twenty-four or forty-eight hours.

The second discussion which recently appeared, is found in "Standards of Child Welfare" issued by the Children's Bureau, in an address by Dr. Chas. V. Chapin, of Providence, R. I. After broadly treating the subject, Doctor Chapin points out the following conclusions applicable chiefly to cities with large foreign populations:

- (1) The midwife is unnecessary and can gradually be eliminated.
- (2) There should be an annual registration, and supervision should be maintained.
- (3) The foreign population must be educated, the most valuable agencies being nurses and clinics.
- (4) Prenatal clinics are needed and especially an enlarged out-patient obstetric service, partly free and partly pay.
- (5) More maternity wards are needed.
- (6) There should be better obstetric training for medical students, which will be made possible by greater opportunity for clinical instruction.

AN IOWA ENTERPRISE IN MEDICAL SERVICE

BY A. E. KEPFORD, DEPARTMENT OF TUBERCULOSIS, BOARD OF STATE INSTITUTIONS, DES MOINES, IOWA

IT is difficult to put down in cold type a great inspiration. It is like trying to photograph a beautiful face in which one desires to reproduce spiritual qualities. The only thing one can do is to get a delineation of the face in which the deeper meanings of character are not revealed. The same difficulty is faced in any attempt to describe adequately the inception and organization of the Greater Community Association of Creston, Iowa, which is at once a plan and a prophecy and which involves the highest principles of democracy.

Dr. F. E. Sampson, a physician and surgeon of Creston, Iowa, may be called the prophet of this great movement; he has led the way to the promotion of the Greater Community Association by which six counties have organized their social, religious, educational, and economic forces. Through his long experience he had witnessed thousands of men and women who were the victims of social ignorance and neglect coming to the hospital for surgical and other care. This appalling waste of physical resources, much of which could have been prevented, made a dramatic appeal to him. Many of the persons who sought relief were the victims of a system of medical and social procedure in which society had made the fundamental mistake of failing to recognize and remove the causes which produce these unfortu-

nate effects. Attempts at hospitalization are often only perfunctory because of the lack of adequate equipment and the scientific training which is necessary if persons seeking relief are to be cared for properly. In other words, many hospitals are but a step removed from ordinary boarding houses and, through insufficient financial or other support, possess but limited opportunities to become efficient. And then, too, there are those petty and irritating misunderstandings in the community, not only civic but medical, which prevent the highest interest of the patient being al-



Fig. 1. The rented cottage where Cottage Hospital began October 1, 1894, with a few pieces of white enameled furniture, including five beds and an operating table; working force of one nurse, one cook, one chambermaid; and the notion that these justified calling the place a hospital.

ways taken into consideration. Superstition and suspicion are the results of ignorance; tragedies arise from the fact that people do not know each other well enough. Generally speaking, people desire to do what is right, but through lack of knowledge, organization, and coordinated effort they can not accomplish the things which are for the best interests of the whole neighborhood. As a rule, people are kind-hearted and deeply interested in community welfare, and there is always an avenue of approach open to those who seek the public good.

Dr. Sampson sensed this. He saw the human possibilities. He has an abiding faith in humanity. He has a very deep reverence for the genuis of Christianity. The greater community association of his vision was to be a correlated expression of the social forces of a population of over a hundred thousand souls.

In ancient times the physician was also the priest. Medicine and religion are and always will be coordinate. The healing of the souls of men has a close relation to physical welfare, though this fact has not been recognized by the church. There can be no permanent separation between the spirit and the body in the present order of things. They are coexistent and interdependent. That which makes for physical welfare has always its moral reflex action on the soul. The church is part of the very foundation of the Greater Community Association. It is permanent. Men die, but man lives, and, so long as man exists as man, instinct will group men for spiritual enterprise.

The medical profession is also a fundamental group upon which the Greater Community Association is built. As the nineteenth century was the era of discovery and invention in which equipment was assembled, so the twentieth century is the era of prevention. The achievements of medical science in both civil and military affairs proclaim its right to leadership in public welfare.

Completing the triangular foundation upon which the Greater Community Association rests is the educational group comprising public, private, and parochial schools. Secondary to these primary divisions are the economic and civil groups. The completed scheme, therefore, includes churches, lodges, schools, commercial clubs, women's clubs, city councils, boards of supervisors, medical societies, and any other form of social or economic organization throughout the area.

Prevention is better than cure. In fact, prevention is more easily accomplished than cure. To prevent disease, delinquency, and crime is the social gospel of the twentieth century. What multitudes of human beings may be seen today socially, morally, and economically unfit, loading the



Fig. 2. Cottage Hospital as it appeared on its twenty-fourth anniversary of continuous service. On January 1, 1919, it was transferred to the Greater Community Association, and its name changed to the "Greater Community Hospital." The south wing is to have one more floor, and a solarium will be built upon the roof. The Spaulding Service Building to the rear of the fourth story of the central building does not show in the picture.

ship of state down to the very water line, who through proper social cooperation could have been kept fit and at a high point of civic efficiency! It is not to be wondered at that the Greater Community Association puts its emphasis on child welfare. It makes provision for the adequate physical and mental care of children. It proposes to establish child welfare stations and psychopathic and tuberculosis clinics accessible to every child in the various communities throughout the countryside.

This preventive work will be directed by a social service secretary, who will not only supervise a staff of nurses doing extension work along this line, but who will also help to solve the social problems growing out of such nursing service.

This plan might appear to be the fabric of a beautiful dream but for the fact that a very material foundation has been laid, upon which this entire social structure has been erected. That foundation is a hospital located in the city of Creston, which represents an investment in grounds, buildings, and equipment of over \$100,000. It has had a successful existence of twenty-five years. This hospital has been donated as a free gift to the Greater Community Association and is now a hospital belonging to a population of over a hundred thousand people. It is the people's hospital and stands without incumbrance, a monument to the faith of those who devised and promoted the Greater Community Association.

The hospital belongs to and is controlled by the people. It does not exist for any physician or group of physicians. The motto of the Greater Community Association is "Service." The hospital affords no special privileges to any physician. It does, however, offer multitudes of opportunities to every visioned doctor. The hospital stands as a challenge to the genuis, ability, and energy of every medical man in the area. Its

hospitable doors are wide open to every physician who can prove his worthiness to enter. The Greater Community Association says: "Here is the equipment. Here is an x-ray equipment and an expert roentgenologist. Here are the laboratories. Here is a nursing service, second to none. Here is your community. But you must prove worthy to serve your own community in your own

are the precept that it shall be a long way from the threshold of the hospital to the operating room and the rule that from the time a patient enters the hospital a complete record of his case is kept. There can be no dark and sinister compacts here between physician and patient.

The government of the Greater Community Association is vested in a board of governors. (See

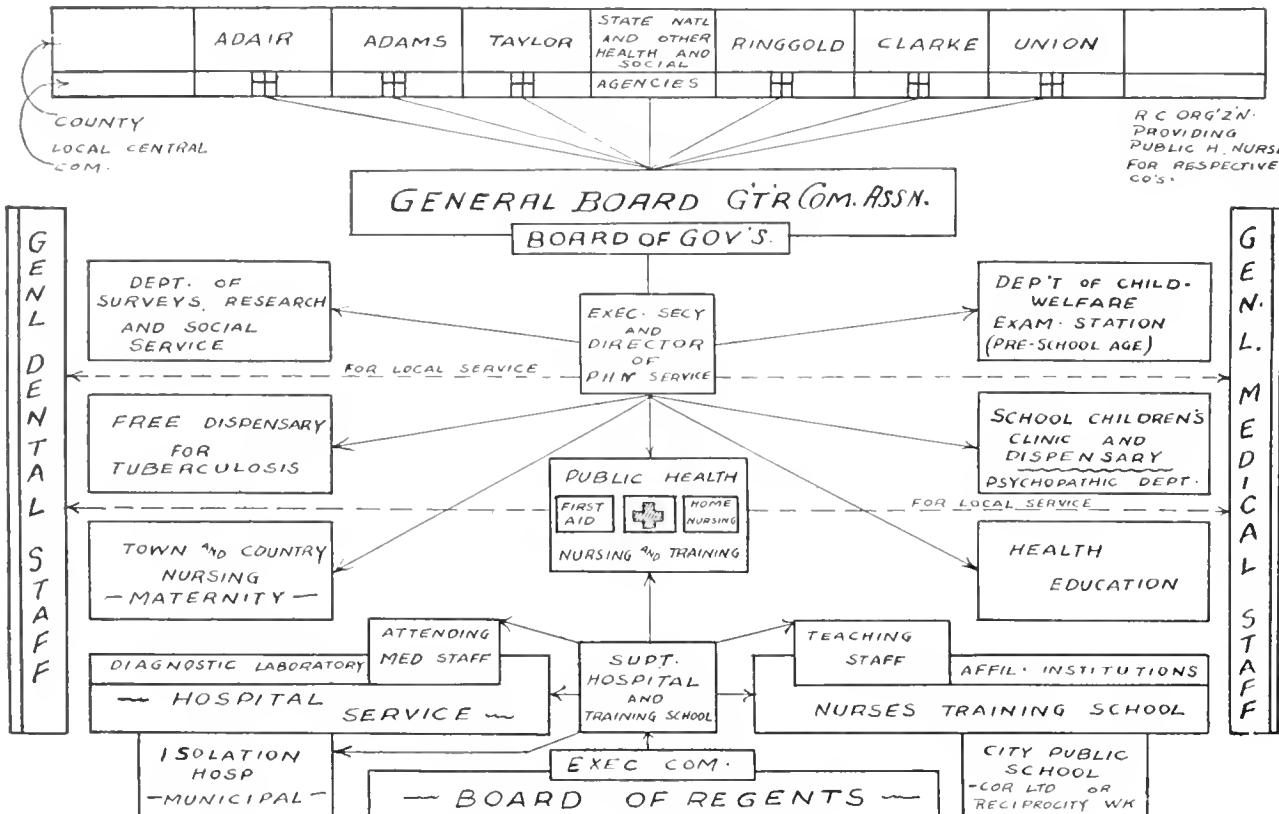


Fig. 3. Diagram showing organization of the government of the Greater Community Association.

neighborhood first, and thus demonstrate whether you have the vision of service. As a physician in your own neighborhood you must be identified with the great program of socialized medicine, and, only when preventive measures have failed and it is necessary to bring your patient to the hospital, will you find a welcome here."

The physicians of this community, among the most progressive in the country, with few exceptions have studied this plan and are heartily in accord with the general program. They are enthusiastic. Indeed, practically all of the county medical societies in the jurisdiction have taken memberships in the Greater Community Association, and the doctors themselves are discussing its reaches of influence with the people of the countryside and devising ways and means for success. Moreover, many physicians have themselves taken memberships in the association. Among the principles of the hospital management

Fig. 3.) Each participating group, however, has a committee of three, known as the social service committee. This committee represents the organization in what may be termed a general assembly. Necessarily the general assembly is a large body. This group selects the board of governors. Their jurisdiction is limited to the social side of the service, including the departments of child welfare, dispensaries, public health nursing, etc. The hospital and training school are in the custody and under the direction of the board of regents. This board is the supreme authority, and is elected by members of the association, individual and institutional membership voting. The hospital and training school is under the authority of a superintendent, who is responsible to the board of regents. (See lower line of diagram in Fig. 3.) The department of welfare, social service, etc., is under the authority of the executive secretary (a public health nurse), who

is responsible to the board of governors. (The board of governors is in effect the executive committee of the general assembly.)

The finances of the two departments of service, hospital (or scientific) department and the welfare (social) department, are entirely separate. All charity patients must come through the social service department, and this department is held accountable for the actual cost of hospital care. The hospital contributes the gratuitous service of its medical staff and the advantages of its organized diagnostic and nursing service. This puts it up to the welfare and "up-lift" agencies of each community to look after their own people or see to it that their county

thereafter is perpetually a member, so long as active interest in the association continues. Provision is made, however, to cut off any dead members. This money goes into an endowment fund, the purpose of which is to maintain a social service secretary and such office force as may be necessary to carry forward the work of the association.

Recently one of the board of governors brought in six memberships, and, in a number of towns in the various counties throughout the jurisdiction, every church has taken membership.

Each county is organized from within to co-ordinate its various forces for the promotion of community welfare and especially for the con-

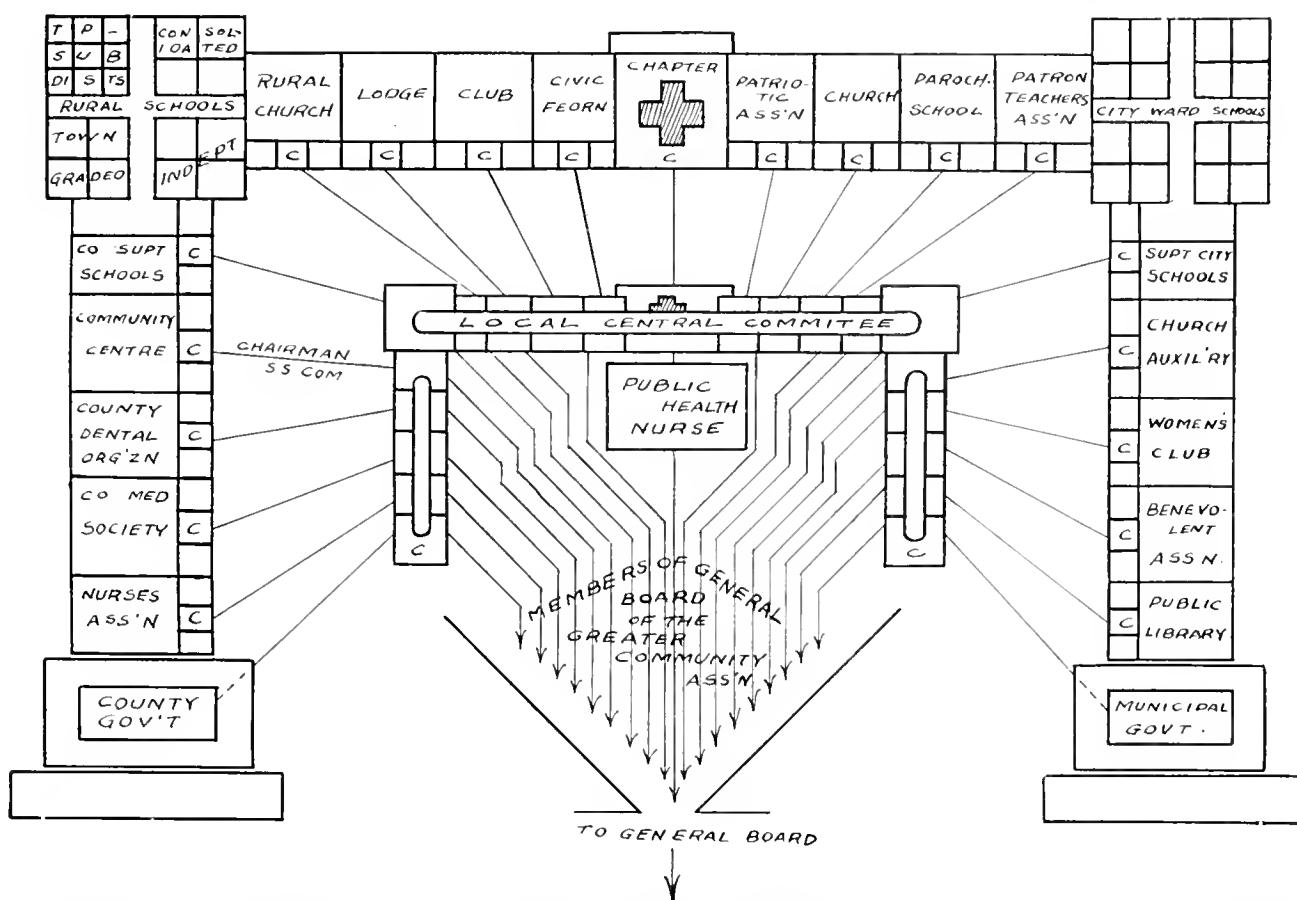


Fig. 4. Diagram showing local central committees of the Greater Community Association. These committees coordinate the local forces—social, fraternal, religious, educational, commercial, agricultural, industrial, professional, and political—for local service. Each trio of squares equals the social service committee of the organization; C stands for the chairman of the committee who represents his organization on the local committee and on the general board of the Greater Community Association.

assumes responsibility for the hospital expense. In either event, the medical staff contributes gratuitous service.

The assembly meets from time to time in discussion of the public welfare and health movements which have to do with general community betterment.

Membership in the association is \$25, payable but once. Each church, club, school, lodge, or other organization participating pays \$25 and

servation of human life values. (See Fig. 4.) The local central committee includes educational, medical, and local government administrative heads. The public health nursing activities are directed by the public health nurse (provided by the county Red Cross Chapter). The local central committees of the six counties meet quarterly in the assembly room on the fourth floor of the new Central Hospital building. The aggregated central committees constitute the general assembly

of the general board of the association. Each participating organization has its own committee of three members (the social service committee). The chairman of this committee represents his church, lodge, club, etc., on the local central committee, and is also a member of the general assembly where he is authorized to cast the vote for his organization in the election of the regents and the board of governors.

The American Red Cross is participating, and

manage it. The question here is, How shall the hospital be supported? The answer has been worked out in this way. No patient is received in this hospital free; someone must pay for room and board. An illustration will serve to make this point clear. The social service committee of a church at Bedford, forty miles distant from Creston, applies at the hospital for the admission of a woman who needs a surgical operation and is unable to pay. The secretary will then ask this

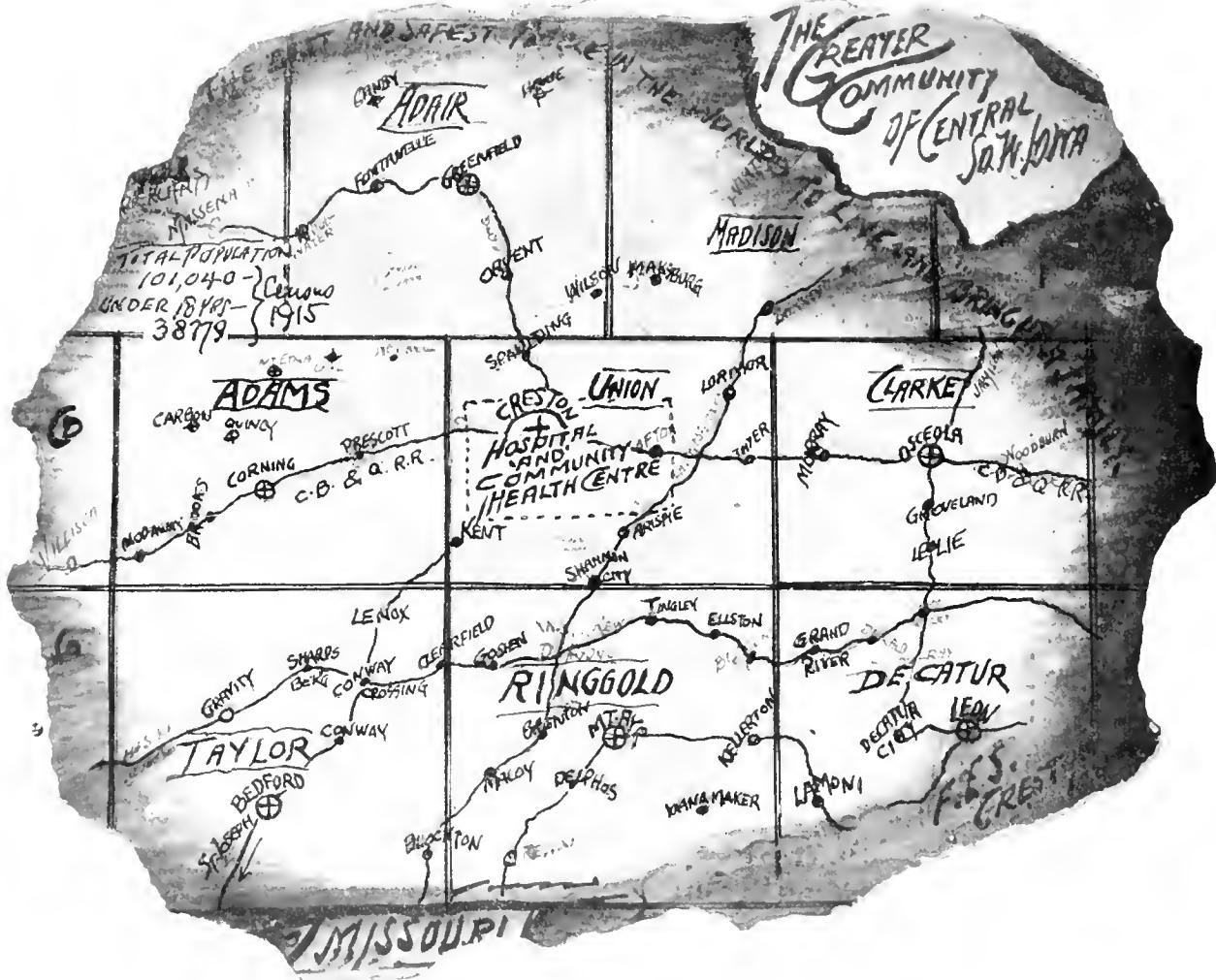


Fig. 5. Map of the six counties served by the Greater Community Association.

chapters and branches throughout the district have become a part of the association. A scheme has been worked out by county superintendents of some of the counties, at least, for Junior Red Cross membership in each township. There are nine schools in the average rural township. Nine schools combined will hold one twenty-five-dollar membership. Thus the juniors become a part of this great achievement.

The hospital does not receive any of its funds for operation expense from the Greater Community Association. A board of regents direct and

question: "Has your church sufficient interest in her to pay her room and board?" The answer being in the affirmative, the woman is brought by her physician; the operation is performed either by him or by a surgeon of the hospital staff. The room and board at the hospital are paid by the church, but neither the attending physician nor the member of the hospital staff can make any charge whatever for his services. The maintenance of the hospital is thus assured.

One of the charter principles of the confederation is that no physician, either in private prac-

tice or as a member of the hospital staff, can charge a fee for any service rendered by him to any patient whose room and board have been paid in whole or in part by any person or group or from public funds. That is, free professional service for charity cases is the contribution made by the physicians practicing in the hospital of the Greater Community Association. On the other hand, when a physician brings a patient to the hospital who is able to pay, the patient pays the regular hospital rate and whatever fee may have been agreed upon between him and his physician. Meanwhile the Greater Community Association has provided a hospital equipment and service as fine as can be had in any city of a hundred thousand.

Here, then, we approach what may be considered a solution to the problems of the rural hospital. We have a hospital which makes no attempt to pattern after the great city institutions, but is organized to meet the needs of a rural neighborhood. The Greater Community Association has been taught to regard the hospital as a repair shop, necessary only where preventive medicine has failed. The standards of this hospital are adapted, therefore, to the demands of a rural population, and the ethics governing the whole plan are expressed in the law: "Thou shalt love thy neighbor as thyself." This hospital has in itself three general functions: social service, which includes preventive medicine, child welfare, and clinics; nurses' training school; and the maintenance of an adequately equipped hospital, which challenges the finest scientific skill.

A great many plans have been suggested for a memorial to the American soldiers who have been killed in action or died of disease during the great war, but the Greater Community Association has established a memorial fund to be used for child welfare. This foundation is to perpetuate the name of a soldier who made the supreme sacrifice whose name otherwise would perish from the earth. The memorial is in the form of a tablet on the wall of the reception corridor of the hospital with the name of the man in whose memory the money is given inscribed upon it. Many liberal citizens are contributing Liberty bonds for this purpose. The idea is a beautiful one. The hope is that eventually an endowment will have been created large enough to support by its income a trained nurse whose entire time will be devoted to the care of the babies and little children of the hospital area.

Recently another feature has been added in the shape of a \$20,000 block of capital stock in the one daily newspaper published in the "greater community," which has been given into the care

and keeping of the Greater Community Association's board of regents; the income derived from this stock is to be contributed to the maintenance of the child welfare service, and with this is included assurance of adequate publicity for the work of the Greater Community Association. The story of how the hospital came to possess 40 per cent of the capital stock of this *Greater Community Newspaper* will, of itself, provide material for an interesting story and one that should carry encouragement to any who may be striving to promote efficient hospital service against the current of perverse political influence that not infrequently afflicts rural as well as urban communities.

I can not close this article without making the suggestion that this experiment is a tremendous challenge to the church. The fundamental principles of this organization are those laid down twenty centuries ago. It remained for a physician to discover the plan and to become the prophet of a new era. The church is beckoned forward. Public health and public morals are intimately related. Meanwhile democracy is justified.

CLINICAL CONGRESS OF SURGEONS PLANS HOSPITAL STANDARDIZATION

The meeting of the Fellows of the American College of Surgeons, gathered at the Waldorf-Astoria, New York, October 24, marks a most constructive step forward among hospitals. The day was given to hospital standardization. Two thousand, nine hundred and forty doctors were registered. In addition, a group of hospital superintendents and trustees was present.

Probably never before was so large a group of doctors assembled to consider hospital problems; nor did any group ever strike a higher or more unselfish note in considering hospital matters. Such a spirit in the medical profession means a new era among hospitals. It means coöperation. After years of work the College placed before the hospitals a "minimum standard" and then asked the coöperation of hospitals in meeting it. It asks coöperation only on the basis that the "minimum standard" is sound and right.

John G. Bowman, director of the College, stated the minimum standard as follows:

The Minimum Standard

1. That physicians and surgeons privileged to practice in the hospital be organized as a definite group or staff.
2. That membership upon the staff be restricted to physicians and surgeons who are (a) competent in their respective fields, and (b) worthy in character and in matters of professional ethics.
3. That the staff hold meetings at least once each month to review and analyze the successes and failures in the treatment of patients.
4. That accurate and complete case records be written for all patients and filed in an accessible manner in the hospital.
5. That clinical laboratory facilities be available for the study, diagnosis, and treatment of patients.

THE TRAINING SCHOOL OF PSYCHIATRIC SOCIAL WORK AT SMITH COLLEGE

BY EDITH R. SPAULDING, M.D., FORMERLY DIRECTOR PSYCHOPATHIC LABORATORY, WOMEN'S REFORMATORY, BEDFORD HILLS, N. Y.*

WHEN it was proposed last spring to train a group of social workers for the purpose of aiding in the re-education and treatment of the soldiers who were suffering from the war neuroses and psychoses, much anxiety was felt regarding what was considered very much of an experiment. What should such a group of women be taught? How could they be made of the greatest use? If they were to help carry out the instructions of the psychiatrist intelligently, would it not be necessary for them to know much of the detail of the mental life of the patients? Would not this knowledge necessitate their delving into fields which are usually unfamiliar to the lay worker, and even to the medical social worker? What would be the effect of dispensing such knowledge to young women, many of whom had only just finished college? Were they old enough to assimilate what has caused many an older person mental and emotional indigestion?

The Need Warrants the Experiment

Although we wondered and feared, at the same time we also desired. It seemed such an opportunity, such a chance to jump ahead in our ideals of mental hygiene, such an opportunity to broaden the field of the social worker. Besides, there was an urgent demand for persons thus trained. The physicians from Canada told of the great need of specially trained social workers to help in the reconstruction of their soldiers who were suffering from mental and nervous disease. A neuro-psychiatric unit had already been mobilized in our own country, which included some of our best mental nurses. But there were few social workers who had had the special training which would equip them to do the social work that might be necessary.

In giving such a special training, however, should we not be taking too great a risk in introducing to the theories and actualities of mental disease a group of young women who represented a variety of experience and training? In answering this, we had only to recall the pluck and endurance that had been shown by women of other countries in the midst of the most horrible situations, and to remember what some of our own

countrywomen had already accomplished, to be convinced that even though the war was two thousand miles away, a group of our women, if wisely chosen, would be equal to any task for which they were needed.

Furthermore, there was the question whether it was wise to take a group of women without medical training into the sacred precincts of the temple of psychiatric thought, which not infrequently had been withheld from the, shall we say, profane touch of the mental nurse. Here again the need seemed to warrant the risk taken. The psychiatrists themselves would hardly be able to devote as much time as would be necessary for the reconstruction of each case. Some one would have to help in carrying out the detail of the plans they would indicate. Should it not be a trained rather than an untrained person, and should not that training be the most fundamental possible?

Study Problems of Human Behavior

What part of the field of psychiatry should such a group be taught? We had no intention of including the whole field and attempting to make psychiatrists of lay workers. The greatest emphasis should, we thought, be laid on the study of the principles of mental hygiene. Much time should be devoted to the interpretation of mental symptoms, considered in general as they occurred under the headings of different mental diseases, and in particular as they appeared in the war neuroses and psychoses. From the first it was emphatically stated that our purpose was not to make diagnosticians of our students, but rather to cultivate in them a comprehending and sympathetic attitude toward the problems of mental disease. Therefore, a course was decided upon which should give to the students a knowledge of human behavior, both normal and abnormal, and should train them to be of practical use in the study and treatment of abnormal mental conditions.

Besides the course in psychiatry, there were courses in sociology and in psychology. Each of these from its own point of view aimed to show the struggles in the adjustment of elemental instincts which have been necessary as civilization has advanced from lower to higher levels. The course in sociology included lectures and confer-

*Read before the Mental Hygiene Section, National Conference of Social Work, Atlantic City, N. J., June 2, 1919.

ences on case work, and the practical problems of the adjustment of the individual to the community through the consistent utilization of its many resources.

In addition to the lectures in psychology, a short course was given in mental testing, again not with the purpose of making diagnosticians, but of increasing the student's understanding of the significance of mental tests when performed by others. Some of the class who had had previous experience were given opportunity to test patients at the State Hospital.

Continuity of Course Sustained

In order that the training given might be as intensive as possible and might represent the best work that has been done in the field of mental medicine, the cooperation of many of the leading psychiatrists of the country was asked. Vassar had already established such a precedent in the plan of a course for the training of nurses. This plan which we were glad to follow far exceeded our expectations in the amount of continuity it was possible to maintain and in the intense interest which it aroused among the students. In the course in psychiatry alone, there were twenty-three visiting lecturers. Contrary to what might be expected, the subjects followed each other in as consecutive a manner as if it had been given by one lecturer alone, and what repetition there was, was said on the authority of the president of the college to be good pedagogy!

The course in social psychiatry was introduced by a lecture on mental diseases in general. It was thought desirable to consider then the mental conditions that have a definite physical basis. This naturally took us into the field of neurosyphilis and the mental conditions that are caused by poisons and trauma.

Personality Studies Made

Early in the course the class studied history-taking in detail. Later on, there was required from each student a history based on this outline, which was to include a well worked out personality study. Each student was urged to take herself as a subject as it was supposed that in this way much data would be available. It was also felt that a knowledge of her own conflicts and adjustments would constitute one of the best preparations for her work with the conflicts of others. Personality was studied in the greatest detail, first as seen in the normal individual, and then as it develops in the various abnormal mental types in the disorders of delinquency, in the psychoneuroses, in mental disease of alcoholic or-

igin, in the manic depressive psychoses, and in *dementia praecox*.

The class was extremely fortunate in having two weekly clinics at the Northampton State Hospital. This added greatly to the interest of the course and made it possible for the students to see the various types of mental disease they were studying. Besides this, lectures illustrated by lantern slides and a moving picture film added to the graphic presentation of the subject. Once a week an evening lecture was given which the public was invited to attend.

Those who are familiar with the study of psychiatry know that there are different schools which deal with mental problems from quite opposite points of view. As it was probable that the different points of view would be presented in the various hospitals to which the students would be sent later on, it was thought advisable to present to them opposing opinions and theories even at the risk of causing some confusion. In order as far as possible, to eliminate unnecessary and unproductive controversy, each lecturer was asked to state his point of view frankly in the interpretation of mental symptoms, and to omit all expression of opinion which would tend to prejudice his hearers against other points of view.

Ready Response from Pupils

In looking back over the course, it seems impossible that the group should have been able to assimilate so much in so short a time. Each lecturer, however, spoke on the subject to which he had devoted much time and in which he was consequently greatly interested. His enthusiasm was contagious and the class responded with a corresponding amount of interest. They appreciated the opportunity of hearing men who had given years to the study of one subject, and faith in the judgment of these men enabled the students to utilize theories which, under other circumstances, it might have taken them years to accept. The four hours of lectures daily lengthened frequently into a much longer time because of the unflagging interest among the students and the lecturers. The additional four hours for daily reading, which supplemented the lecture hours, were conscientiously utilized.

The two months' course of didactic work at Smith College was followed by six months of practical work at various mental hospitals and clinics, where there was also opportunity for a continuation of the psychiatric instruction. At the present time, the forty students who completed the course are holding positions of responsibility in this country and in Canada.

As a result of last summer's experiment, a per-

manent school is to be established at Smith College for social work in the following four branches: psychiatric social work, medical social work, child welfare, and community service. Furthermore, three other schools of a similar type have been started in Philadelphia, Chicago and New York. If the interest in this type of training continues, it will be possible for every mental hospital and clinic in the country to be supplied with a psychiatric social worker.

Digressing a moment, let us consider life a series of adjustments, roughly classified as two-fold: First, the internal or the individual adjustment, and second, the external or the environmental adjustment. The rôle of the social worker is, we believe, to aid in the solution of the problems of maladjustments of both types. The task of the medical social worker, as we know it, consists first in aiding the physician to make the patient more fit physically (the patient's internal adjustment from a physical point of view), and second, in utilizing the social and industrial resources of the community in helping the patient make his external or environmental adjustment. The task of the psychiatric social worker consists first in aiding the psychiatrist in making the patient more fit mentally and in developing his personality to the extent of his individual capacity (the patient's internal adjustment from a mental point of view), and, second, in common with the medical social worker, in utilizing the resources of the community in helping him make his environmental adjustment.

Fundamental Requirements of Training

It is this difference which calls for the difference in training. The healing of a lung from tuberculosis or the treatment of a heart that is not functioning properly requires detailed treatment, it is true, but of a very definite nature, which demands usually the following out of a physical procedure. On the other hand, the treatment of mental symptoms and the adjustment of cases exhibiting anti-social conduct requires a knowledge of individual mental adaptability and development. The social worker who is to help carry out such treatment must be able to appreciate her patient's capacity for adaptability and assist the physician in helping the patient to make his individual as well as his environmental adjustment.

It is doubtless true that all of us, the mentally normal as well as the abnormal, are capable of greater powers of adjustment than we display; that with wise counsel, followed by the process of mental and physical re-education, we could all attain greater power and usefulness. The time

will come, we believe, when a knowledge of human behavior and of the principles of mental hygiene will be required in the training of every social worker. The war has brought about the realization of the need of such knowledge for the social worker in the field of psychiatry. Before long there should be a realization of the importance of such training in the field of social work in general.

The dissemination of knowledge regarding the principles of mental hygiene may be accomplished in two ways: (1) through the education of the mass by means of public lectures, literature, and educational procedure in general; (2) through the intimate contact between individuals in the clinic and in the home. It is in the second type of work that the psychiatric social worker has an opportunity to spread in a community knowledge of the principles of mental hygiene.

Recognize Social Maladjustments

In the past there have been on the one hand our mental hospitals where the psychiatrists come in contact with the well marked cases of mental disease; on the other hand, there has been the community where social maladjustments and incipient mental disease come only too seldom to the knowledge of the psychiatrist. The social worker is the natural go-between. She visits the hospitals and she visits the homes in the community. If she is equipped with knowledge that will enable her to recognize social maladjustments which should be corrected and abnormal mental symptoms when they first develop, she can guide the patients to appropriate channels, while readjustment is possible and the prognosis favorable. She will thus have vast opportunities for supplying the much needed link between social maladjustments and mental disease, or, in other words, between the community and the mental hospital.

To summarize what we believe to be the field of the psychiatric social worker, she will, through understanding of the true interpretation of mental symptoms, be able to spread in the community an attitude toward mental disease that will do much toward encouraging treatment in early stages. She will be able to carry out in detail and with intelligence the treatment which the psychiatrist indicates but which he does not have time to carry out, and she will be able to aid him in his study of each case by contributing a true picture of the patient's reactions in his different environments. Besides this, she will bring to the mental problems that confront the psychiatrist the help that a knowledge of the social and industrial resources of the community can contribute.

The psychiatric social worker is the outcome of a war emergency. What the field of war neuroses and psychoses might have evolved, and of what service these workers and others similarly trained might have been in work with our soldiers will perhaps never be known. Still a definite need for such workers, psychiatric aids they have been called, has already been recognized in the community. The opportunities of the future lie in applying their usefulness to the general field of mental hygiene. Since here the field is boundless, their opportunities will be unlimited. The degree of their success, however, will depend largely upon the opportunities given them by the psychiatrists and the community to prove their usefulness.

LAW FOR THE DOCTOR

BY LESLIE CHILDS, ATTORNEY AT LAW, KISSIMMER, FLA.*

Validity of agreement to pay attending physician percentage of damages recovered for personal injury.

In *Sherman vs. Burton*, 130 N. W. 667, the plaintiff, Dr. A. T. Sherman, was called to treat the defendant, Geo. E. Burton, for an injury to his knee, the result of a collision between cars on the Detroit United Railway. Subsequently the doctor and his patient entered into the following written contract:

"Detroit, Mich., March 14, 1906.

"I, George E. Burton of the city of Detroit, do hereby agree as follows with Dr. A. T. Sherman of the same place. I will pay to the said Dr. A. T. Sherman for professional services, one-third of any sum which I may receive from the Detroit United Railway, as damages, arising out of an injury to me on said D U. R., December 7, 1905. And I further agree to pay to said Doctor Sherman the sum of ninety dollars (\$90) in addition to the above mentioned one-third if the amount received by me is two thousand or more dollars, that is, if the settlement is made out of court."

GEORGE E. BURTON.

Later Burton, it appears, settled out of court with the railway company for \$1,800. He and Doctor Sherman had some difficulty in agreeing upon the settlement under their contract, which ended by the doctor bringing an action on the contract in which he claimed there was a certain amount still due him.

On the trial of the cause the testimony of Doctor Sherman and that of the defendant, Burton, his erstwhile patient, showed a remarkable degree of variance. The doctor insisted that it was Burton who conceived the idea of settling his doctor bill from a percentage of any amount in damages he might obtain from the railway company. That Burton proposed the contract, and that he (the doctor) objected to it, but finally upon the urging of Burton agreed to it.

When Burton took the witness stand, he was equally as positive that the contract was the child of the doctor's brain; testified that the doctor had remarked about what a good case he (Burton) had against the railway company, mentioning vague sums of money that could be obtained if the case was handled in such and such a way, and considerable more along the same line.

The court in reaching its conclusion made no apparent effort to reconcile the testimony of the parties; in fact,

gave little weight to the evidence of either, basing its opinion upon the principle of law involved and the intentions of the parties as disclosed by the written contract. The court said:

"At the time the agreement was made, the parties contemplated that unless a settlement was made a suit would be instituted against the Railway Company and the agreement expressly provided that, if the matter was settled out of court for \$2,000 or over, the plaintiff should receive \$90 in addition to one-third of the amount received. The amount which the defendant could obtain from the Railway Company must depend principally upon the nature, extent, and character of his injuries, to be determined by the testimony of experts like the plaintiff, and in no small degree by their opinions, incapable of conclusive refutation before a jury of non-experts. We think it necessarily follows from the circumstances of the case as disclosed by the plaintiff and the agreement that the parties contemplated that the plaintiff should be a witness in case of suit and should give a history of, and opinion upon the case in the event of a proposed settlement. The plaintiff's interest in the amount of damages furnished a powerful motive for exaggeration, suppression, misrepresentation,—a temptation to swell the damages so likely to color his testimony as to be imminent to the pure administration of justice, and therefore invalid." Holding that the physician could not recover under the contract, as it was invalid, for the reasons stated above.

The ruling in this case is in accord with the rule enunciated in a long line of similar cases that precede it. And, too, in every one of these cases the identical question arose, i. e., the question relative to the part the attending physician was expected to play as a witness in the prosecution of the contemplated damage suit, out of which his fee was in a measure dependent.

In none of these cases does it appear that the physician agreed to, or did, give anything but true testimony; there is an entire absence of fraud, collusion, or attempt to "fix" the testimony; yet contracts of this kind have been uniformly held invalid. These opinions have been quite generally based upon the probable effect the existence of a contract of this nature would tend to have upon the testimony of an attending physician at the trial of the cause.

It appears reasonable to suppose that a contract of this kind would be valid were it hedged about in such a manner as to show plainly that nowhere along the line was it contemplated that the attending physician should act as a witness, or participate in any manner in the negotiations between the injured party and the prospective damage payer.

But a case in accord with the above hypothesis has not, to the writer's knowledge, been brought before the courts, and, when the intimate relationship existing between physician and patient is considered, along with the usual method employed in the approximation of damages for a personal injury, it appears extremely improbable that there ever will be one.

EUGENICS AND IMMIGRATION

Usually the problem of immigration is considered only from its economic viewpoint, but inasmuch as the characteristics so acquired may improve a race or cause its deterioration, this process of absorption should be studied before it is complete. Thus reasons Dr. Alexander Graham Bell in the *National Geographic Society Bulletin*. Doctor Bell believes that Congress should provide an

*The eighth of a series of articles on "Law for the Doctor," written for MODERN MEDICINE, by Leslie Childs.

ethical survey of the people of the United States. "We should have definite and reliable information, concerning those foreign elements which are beneficial to our people and those which are harmful . . . The process of evolution should be carefully studied, and then controlled by suitable immigration laws tending to eliminate undesirable ethnical elements."

SANITATION OF SCHOOLS AND FACTORIES

The report of the sanitary conditions in the Framingham schools issued as *Monograph No. 6* is a somewhat delayed publication of detailed surveys made of conditions existing at the beginning of the Framingham Demonstration. One of the first steps of the Demonstration was



Fig. 1. As in most communities, the school buildings in the territory covered by the Framingham Demonstration vary from the old frame structures to modern brick buildings. Even in the best type of buildings, the design and construction do not always favor good illumination.

a general sanitary survey conducted by Mr. Franz Schneider, Jr., then of the Russell Sage Foundation. In the study of school conditions he was materially assisted by Mr. W. Turber Fales, an advanced student at the Massachusetts Institute of Technology.

The study deals strictly with general sanitary and hygienic conditions, indicates the approach to this field, and is perhaps suggestive of general conditions as regards school hygiene in American urban conditions.

The study does not purpose to cover the question of the adequacy of the plant as an educational institution; the interrelation is apparent, however, in the provision of sixty-eight rooms,—all types of buildings from old frame structures to modern brick buildings,—for a school population of about 3,000. Instances of children sitting so close to radiators as to be uncomfortable, or so near windows as to receive drafts are in part due to over-crowding and to inadequate equipment.

The tests for heating were made in May. Due allowance must be made for the fact that outside temperatures were not relatively low, nor were the conditions for humidity as unfavorable as in the winter when very cold air containing little moisture is heated to room temperature.

Many defects in temperature were recorded. More than half the rooms were above 70°; a fourth were above 72°; nearly three-fourths were above 68°. The extremes were 75.2° and 62.2°.

An important defect was noted as to the accuracy of the thermometers in use, one of which read 7.6° too high;

another 3.1° too low. More than half the thermometers read too low, a circumstance which tended to over-heating. It was emphasized that operation is the secret of good ventilation, even when modern mechanical plants are provided. It is an evident folly to spend thousands of dollars on expensive ventilating equipment and then turn it over to the sole control of a man who does not thoroughly understand what the apparatus is designed to do. It is recommended that supervision of ventilation be placed in the hands of the full-time school inspector, and that he receive the teachers' reports of temperature, make tests of ventilation from time to time, and see that proper conditions are maintained.

Fifty-four rooms were studied as regards window and floor area space, the finish of the walls, and the nature and condition of the shades. A watch was kept for glare.

Taking all the rooms together, nearly 50 per cent of them were poor or bad with reference to the proportion of glass to floor area. In some of the rooms the placing of the windows constituted conditions obviously serious. It was not found possible to correct these conditions by artificial lighting, and usually the shades did not afford the means of control.

The recommendations as to lighting emphasize the un-



Fig. 2. Examples of fixtures which indicate a poor installation for cleanliness,—spring faucet, an impractical bowl, no soap, and a cup fountain.



Fig. 3. This is good equipment for cleanliness, non-spring faucet, bowl, individual towels, soap from holder, and a convex fountain.

satisfactory design of the older schools. The conditions in each room should be scientifically studied and properly regulated,—another important function for the full-time inspector of schools.

Other recommendations had to do with seating, with washing facilities, and with adequate provision of drinking fountains of hygienic type. Special emphasis is laid upon a consistent policy of janitorial instruction regarding the many details of the hygienic management of the school plant.

Framingham is a typical American industrial community. In the industrial survey of typical plants which



Fig. 4. The flashlight photograph at the left shows a dark interior. The side light from the windows comes from a covered porch. The defects in the lighting and arrangement of windows are more apparent when contrasted with the photograph at the right where the seating is excellent.

was made some time ago three principal phases were developed:

(1) A special study of ventilation in certain typical plants where the questions of dust, fumes, chemicals, and general ventilation were touched upon. This was carried out through the cooperation of the New York State Commission on Ventilation.

(2) A special study of safety in a number of the Framingham plants, conducted by the New York Museum of Safety.

(3) A general sanitary study of the great majority of the Framingham industries, over-lapping in a general way the particular interests touched upon more intimately by the special ventilation and safety studies, carried out through the cooperation of the Massachusetts State Board of Labor and Industry.

The technic of the procedure in the investigation of dust and ventilation is given in detail. Tabulation is made of the results of the dust samples in six establishments. With two exceptions they are characterized as "dusty" or "very dusty." Comparison of dustiness on the basis of counts alone is, of course, meaningless. None of the samples taken was considered abrasively dangerous.

The study of mechanical hazards led to recommendations regarding power control, standard conduits for wiring, locking off apparatus for repairmen working on electric lines. Goggles are mentioned for the prevention of life accidents. The fire hazard was regarded as the greatest danger in Framingham industries. The general recommendations state that "the chief problems are those of equipment and method as to general sanitation, depending for their solution in large part upon the personal factor, and therefore on an effective program of education as to personal hygiene."

"Evidently the meeting of all the needs indicated involves not only improved hygienic conditions, but a more adequate personnel for medical, nursing, and clinic service."

BACTERIOLOGISTS MEET IN BOSTON

The Society of American Bacteriologists will hold its annual meeting in Boston, Mass., December 29 to 31, 1919. General and technical bacteriology will occupy the Conference on December 29 under the direction of S. H. Ayers, of the Bureau of Animal Industry, Washington, D. C., and agricultural bacteriology will be directed by



H. J. Conn, Agricultural Experiment Station, Geneva, N. Y.; John W. M. Bunker, of Digestive Ferments Company, Detroit, Mich., presides at the Public Health Section, which program is arranged for December 30. Comparative pathology will be presented by C. P. Fitch. The last day of the session is devoted to human pathology, under L. W. Famulener, St. Luke's Hospital, New York, and to immunology under C. G. Bull, School of Hygiene, Baltimore, Md.

As we go to press the programs on the several subjects are not completed, but as each section is to be a sort of open forum for the presentation of the outstanding work in that field, the meeting promises to be one of the most important meetings of the Society up to this time.

INTERNATIONAL CONFERENCE OF WOMEN PHYSICIANS*

The closing sessions of the International Conference of Women Physicians were devoted to specific phases of social morality. That these problems are being attacked in a scientific, unprejudiced manner is evidenced by the liberal attitude taken by some of the representative physicians.

"Most men and women desire abolition of prostitution," said Katherine B. Davis, "but how shall we go about it?" Segregation has failed as have efforts to curtail vice by legislation, injunction, and abatement.

If a double standard is to be retained, the alternative is a sanction of polygamy and concubinage; if a single standard is to be accepted, it will have to be a modifica-

* Prepared from notes supplied by Dr. Dora Greene Wilson, Kansas City, Mo.

tion of the present standard for men, which would involve educating the people to the toleration of sex indulgence. Such a program would necessitate birth control. Marriage and divorce laws would need to be revised. Scientific research would need to be invoked to work out such a program, but it is a possible solution that would do away with prostitution, and would provide one standard for men and women. Prostitution cannot be made safe. The Government has accepted the single standard "fit to fight," and all agencies should join forces to legislate and enforce fair and decent standards.

The white slave trade was the question treated by Alicia

ers, or wives and widows, in the support of their children. Out of 3,330 children cared for by one government bureau, 2,603 were illegitimate.

The Psychological Section of the Conference found that as friends they had very much in common but as psychologists they could not come together in a report of findings. A sort of general resolution was offered:

"Inasmuch as mental health is fully as important as physical health, we as medical women place ourselves on record in support of a movement to make all schools and colleges responsive to the emotional and instinctive as well as the intellectual needs of children and young people,



Group of inter-allied physicians who attended the recent Y. W. C. A. National Board conference during the six weeks from September 15 to October 25, under supervision of the War Council of the Y. W. C. A. Never before has there been such a large gathering of noted women doctors assembled at one time. Sitting, left to right: Dr. Marie Feyler of Lausanne, Switzerland; Dr. Constance Long, London, Eng.; Dr. Mary Gordon of England; Dr. Tomo Inouye, Japan; Dr. Radmilla Lazarewitsch, from the legation of the Serbs, Croats, and Slovenes in Washington, D. C.; Dr. Yvonne Pouzin, Nantes, France. In the second row, standing, l. to r.: Dr. Christine Murrell, London; Dr. Alice Armand Ugen of Montevideo, Uruguay; Dr. Frances S. Johnston of Edinburgh, Scotland; Dr. Ada Potter, Utrecht, Holland; Dr. Natalie Wintsch, Lausanne, Switzerland and Dr. L. Thuillier, Landry, Paris, and Dr. Margerite Gibeulet, Paris, France. (Photo by Western Newspaper Union.)

Moreau, M.D., of Argentina. There is little change through the ages in this traffic, said Doctor Moreau. It is an ally of prostitution everywhere. It is very flagrant in Argentina. Many states in South America have signed to abolish the traffic but it is not enforced. The causes of white slave trade are economic, social, and psychic. Socially, women should have the same rights as men. Illegitimate maternity should be protected by society.

Psychic conditions offer greater difficulties. The education of the masses is involved. Prejudice is to be overcome. Sex education is to be improved, and the period of adolescence safeguarded. Nothing is impossible. The cause is gaining advocates and solutions will be found.

Illegitimacy was presented by Dr. Anna Moutet, Lyon, France. Her plea was for the protection of motherhood out of wedlock. The needs of a nation whose population is decreasing tends to lessen the prejudice which makes the unmarried mother an object of general censure. If irregular birth is no longer a disgrace to the child, neither must it be a dishonor to the mother. Stringent laws should attach responsibility for the child to the father.

"In 1917 France assisted 70,562 abandoned girls, moth-

to the end that education may become an instrument for teaching the best social adjustments possible."

On sex education they presented the following:

1. WHEREAS, Sex education and understanding are necessary for all human beings, in order that they may understand new complexities of their own lives, and their duties to the social organism, and

WHEREAS, The understanding of sex is one of the most effective ways of meeting the problems of prostitution and numeral diseases we are of the opinion that

A—Definite sex education should be given in all normal schools, training schools, medical colleges, and universities in order that future teachers and parents may be enabled to handle the subject wisely in teaching the children, as it comes up in the home and in teaching the subject in schools.

B—While waiting for a trained leadership to be obtained, that we continue sex education with the means we have at hand in all social classes and groups.

Resolved, That physicians shall call the attention of parents to the importance of sex education, and give them the instruction necessary to that end.

THE MONTH IN MEDICINE

Survey of Current Medical Literature with Editorial Comment

WALTER W. HAMBURGER, M. D., Editor

ANTE-NATAL SYPHILIS

ROUTH¹ offers a novel and decidedly interesting explanation of a possible relation of antenatal syphilis to the proteolytic action of the chorionic ferments. In his opinion, in contrast to most writers, paternal infection of the ovum is not only possible but probably not infrequent. He quotes many authorities in support of this contention and emphasizes the importance of certain clinical observations not in accord with the decidedly more prevalent view that syphilis is transmitted to the fetus solely through the mother.

His theory in the main is based upon the assumption that the investigations of McDonagh, O'Farrel, Balfour, Noguchi, and others have definitely established that either "spores" or "granules" play a rôle in the life cycle of the *Spirochaeta pallida*. It is held that under certain conditions typical spirochetes have been observed to develop from such spores, or spirochetes, to break up into granules, from which eventually normal spirochetes re-develop. Routh summarizes: "Taken as a whole, these observations seem to show that when attacked by salvarsan, and probably other drugs, by antibodies or toxins, the spirals of the spirochete may break into granules which may for a time remain latent, and then, unless themselves destroyed by the same agents, may develop into mature spirochetes under other circumstances at some later date."

Chorionic (syncytial) ferments are present at the point of interdigitation of the fetal and maternal portions of the placenta. These ferments, or their derivates, Routh considers capable of exercising destructive properties upon the *Spirochaeta pallida*, which may be present either in the maternal intervillous or fetal intervillous tissues, both of which are in intimate relation with the syncytial cells of the villi whence the ferments arise. This destructive action of the chorionic ferments is able to break the spirochete

into granules. During pregnancy, action of these ferments may continue on these granules, render them latent and biologically inactive, and perhaps occasionally may actually destroy them. After pregnancy, with the disappearance of the chorionic ferments, the granules re-develop into mature spirochetes. On the basis of this theory Routh attempts to explain four of the main problems evidently incompatible with the prevailing view that direct paternal transmission of syphilis to the fetus is impossible.

(1) Why can a pregnant woman, who later gives birth to a syphilitic child, have a negative Wassermann reaction during her pregnancy, and for some time afterwards? This negative reaction can only occur in cases in which the ovum has been infected by the paternal seminal fluid, either at fertilization, or after the fertilized ovum has reached the uterine mucosa, and when the mother hitherto has escaped direct infection. The chorionic ferments either break the seminal spirochetes into granules or, if the ovum is already infected, it can contain only granules, since the mature spirochete is longer than the head of the spermatozoid. These granules would be kept inactive by the chorionic ferments and during pregnancy could not develop into spirochetes. The mother could be infected only by latent granules. After pregnancy, about fifteen days, according to Abderhalden's investigations concerning the disappearance of the chorionic ferments,—granules still present would develop into spirochetes, when the reaction would gradually become positive.

(2) Why are some syphilitic children at birth and for some time afterwards negative? It seems probable that this will occur in the cases in which the ovum is primarily infected by paternal syphilitic semen or soon after fertilization. Granules formed under the influence of the chorionic ferments are prevented by them from further development till after the child's birth. It is even possible that during pregnancy the protective chorionic ferments might actually prevent maternal spirochetes from invading the fetal tis-

¹ Routh, Amand J.: Am. Jour. Syphilis, 1919, II, 484.

sues, which would lead to a positive reaction of the mother, and to a permanent negative of the child.

(3) Why are spirochetes so rarely found in abortions, even though alternating between still-births in whose tissue they are swarming? Some observers have suggested that the early abortions, so commonly seen in syphilitic women, are not actually due to the syphilis but to abnormal uterine conditions. Routh thinks that if chorionic ferments had been able to granulose spirochetes from father or mother before they could infect the ovum, naturally no spirochetes could be found in the early abortion ovum. Later in pregnancy, maternal spirochetes might succeed in entering the ovum in spite of the protective ferments. It is quite likely that granules, resulting from the spirillolytic action of the chorion, could be found in the embryonic tissues of early abortions, if looked for carefully.

(4) He finally discusses Colles' law from the point of view of his new theory. Colles' original statement was that a woman who gives birth to a syphilitic child does not get infected by that child after its birth. The words of this "law" still hold good, but the general view now held is, that she does not get infected because she already is infected, "every syphilitic child having a syphilitic mother." Whenever this is true, the mother actually has a positive reaction; but occasionally she is found negative during pregnancy, and for a shorter or longer time after delivery. Routh suggests that she has been infected by granules only; when the store of chorionic ferments is exhausted the spirochetic granules develop into the mature organisms.

Comment.—In his closing remarks the author himself points to a few of the objections that might be raised against this undeniably appealing explanation of some of the intricate problems of the transmission of syphilis to the fetus in the uterus. Physiologic and pathologic chemistry of the placental ferments is but little understood; the very presence of such ferments is difficult to demonstrate. So far, not even the action of such ferments on the living spirochetes has been studied. Experiments and tests of all sorts will be required to confirm or disprove this theory. But Routh fails to mention the one most important argument that obviously must be made. Is the spore or granule stage of the *Spirochaeta pallida* really an established fact?

A spirochete is too large to enter the head of a spermatozoid. The entire problem of the direct paternal infection of the ovum, therefore, hinges solely on the question of this assumed granule stage. Routh apparently considers this question

as solved beyond any reasonable doubt. There are many who will thoroughly disagree with him on this point.

H. E.

CURRENT ADVANCES IN PEDIATRICS

IT IS surprising that in spite of the increased demands made on pediatricians during the war both at home and abroad, a great deal of work has been done in pediatrics that is of permanent value. We shall dwell here on only a few of the contributions made to pediatric literature during the last year.

Owing to the scarcity of milk in the European countries, a renewed interest has been evinced in natural or breast feeding. Dozens of articles have been written on the value of maternal nursing, and on the importance of infant welfare work. Of real interest is the attempt made by Chessier,¹ to stimulate the breasts, in cases in which they fail to secrete sufficient milk, by means of faradization. She uses two hollow, cone-shaped, flexible zinc electrodes. The circular bases fit round the breasts and they can be adapted evenly to the surface of the glands. The electrodes are fixed in place with an elastic bandage. An ordinary faradic coil is used, and the connecting cables are attached from the secondary terminals to soldered terminals on the electrodes, which may be used bare or underlaid with several layers of moist lint. The current is passed through the two breasts for twenty minutes twice, or even three times a week. The patient feels a gentle tingling; there is no discomfort or pain, and the only inconvenience consists in having to strip to the waist so that the electrodes may be properly applied.

The results of the treatment surpassed the author's expectations. In the ten cases treated the children improved in health and showed an average gain in weight of $3\frac{1}{2}$ to 5 ounces a week. In six cases the average gain in weight prior to beginning electric treatment was $1\frac{1}{2}$ to 2 ounces a week; in four cases the treatment was instituted at the first or second attendance of the child at the clinic, as the test meal showed that the infants were having less than half the required amount of milk from the breasts and the cases seemed urgent. This work is interesting and should be tried by pediatricians with the hope of lessening the number of infants who must be robbed of mother's milk because of scarcity of milk in the breasts.

In the line of artificial feeding, no startling revelations have been made, but it is gratifying to see a calming down in regard to fancies in

¹ Chessier: *Lancet*, Lond., Sept. 14, 1918.

feeding. Talbot² points out that we must not go to extremes, that both the caloric requirements and the percentage of the milk elements should be taken into consideration. He also emphasizes the importance of combining the clinical symptoms with a study of the stool. The article by Talbot takes on greater importance by the fact that until very recently people drew an imaginary line between the so-called Boston method, or percentage feeding, and the Chicago method, or caloric feeding.

Dry milk has become quite popular in this country. Dennett³ believes that dry milk is better tolerated by those infants who have already received a food injury than raw or boiled milk mixtures. He bases his observation on a study of more than fifty cases in private practice which have been followed over a prolonged period with the utmost care. He also found that dry milk will often control vomiting, overcome intestinal indigestion, and increase the child's weight.

Hess and Unger⁴ studied dry milk from the standpoint of scurvy and found that, when given to a guinea-pig to the equivalent of 80 cc. of fresh milk, it was able to cure scurvy. They also tested dry milk in two cases of human scurvy. The babies showed the typical signs of scurvy, peridental hemorrhage, tenderness of the femora, and the milder symptoms of scurvy. When the diet of the one child was changed from malt soup to four ounces of dried milk diluted with a quart of water, there occurred distinct improvement in all the scorbutic signs and in the general condition. In the other case the malt soup was replaced by the same quantity of dried milk solution (one quart) to which, however, malt, flour, and potassium chlorate were added according to the previous formula. In this instance, likewise, a decided improvement in the scorbutic signs occurred; the hemorrhages of the gums disappeared, the child soon began to stand, and her temperament became happier.

In the line of nutritional disturbances, Hill's work is interesting. Hill⁵ gives a critical review of sugar in its relation to infant feeding. He admits that sugar is the disturbing element in alimentary intoxication, but he is not convinced that the salts in the whey of cow's milk also contribute to the intoxication. So, while he uses Eiweiss (protein) milk in cases of sugar fermentations, he is not certain that the exclusion of salts in the Eiweiss is responsible for the therapeutic effect. He goes still further, claiming that Eiweiss contains as much salt (NaCl) as undi-

luted cow's milk, and much more than woman's milk, and, therefore, he does not see how the salt could be responsible for the intoxication.

A marked turn in the line of treatment of gastrointestinal diseases has been noticed in connection with pyloric stenosis. Of late the treatment of pyloric stenosis had been accepted as surgical. It is, therefore, a relief to find some one who attempts to treat pyloric stenosis medically.

Sauer⁶ obtained good results by the feeding of thick cereal. He prepared the cereal in the following manner:

Skimmed milk	9 oz.
Water	12 oz.
Farina	6 tablespoons
Dextri-maltose	3 tablespoons

Boiled for 1 hour in a covered double boiler.

During the past four years the author used thick cereal feeding in twelve cases of pyloric stenosis. In eleven of the twelve cases the vomiting soon stopped, although in most of the cases the peristaltic waves and the tumor, where palpable, persisted for weeks or months after the vomiting ceased. As to the character of the action of the thick cereal, the author says that it seems likely that the thick, immobile cereal can not be ejected from the stomach by the sudden explosive contraction that produces vomiting of milk feedings. The thick cereal remaining in the stomach can be moved along by the slow peristaltic contraction of the gastric wall.

The observations of Sauer are corroborated by Porter.⁷ In the ten cases under his care so treated the results have been as striking and as satisfactory as in the cases reported by Sauer. None of the ten has been brought to operation; in all the vomiting ceased so promptly that it seemed almost a miracle, and, with cessation of the vomiting, came a rapid and gratifying restoration of nutritional balance. There were a striking increase in tissue turgor and marked improvement in the child's well being.

Still⁸ gives a lengthy discussion of celiac disease, or chronic diarrhea. The child is pale and emaciated; the large abdomen contrasts with the wasted limbs, and the general appearance is that of tuberculous peritonitis, for which celiac disease is apt to be mistaken. The most striking feature is the surprising inconsistency of the child's size with its age. What appears to be an infant little more than twelve months old startles one by unexpectedly talking, and so reveals the fact that it is at least a year or two, or perhaps three or four years, older than its appearance would suggest.

The child's stools are generally pale or the color of oatmeal. At intervals of a few weeks the stools

² Talbot: Boston Med. and Surg. Jour., July 11, 1918.

³ Dennett: New York State Jour. Med., July 1918.

⁴ Hess and Unger: Amer. Jour. of Dis. of Children, April 1919.

⁵ Hill: Boston Med. and Surg. Jour., July 4, 1918.

⁶ Sauer: Arch. Pediat., July, 1918.

⁷ Porter: Arch. Pediat., July 1919.

⁸ Still: Lancet, Lond., August 10, 1918.

become more loose and frequent, perhaps three or four a day instead of one or two. These recurrent bouts of increased looseness are very characteristic of the disease.

The disease drags on for months and years. The child passes an invalid existence with intervals of improvement followed by relapses until, as a result of rigorous dieting, the stools gradually become more normal, and the child eventually struggles back to health, able to take food more or less like other people, but handicapped in growth by the lost time during which the development has been arrested.

Hirschsprung's disease is discussed by Carr.⁹ The diagnosis of megacolon is made readily when the record of a child is complete, but it may be puzzling when a history is unobtainable. Medical treatment of these patients is largely symptomatic and it is probable that children who have a minor defect in the development of the large intestine go through life without serious evidence of colonic enlargement and obstruction. When such patients are under medical care, laxatives, special food, and an occasional enema will relieve them. The more serious cases of Hirschsprung's disease are to be treated by enemata to empty the rectal pouch and high irrigations when there is impaction in the sigmoid or colon. Mechanical evacuation with the aid of a sound or the finger is to be used if the enemata are not effectual.

Influenza naturally occupied an important place in pediatric literature during the past year. Montgomery and Dunham¹⁰ found that the tendency in uncomplicated influenza in infants and children was toward a leukopenia rather than a leukocytosis; that there was a tendency to a slight leukocytosis in complicating pneumonia, and that in all pneumonia cases resulting fatally the leukocyte counts were under 10,000.

Levinson¹¹ found that the course of the disease in children, like that in adults, was mild or severe; that is, there were two groups of cases, those which did not develop pneumonia, and those which did. The physical findings in the former were practically nil except for a pharyngitis which was aggravated by irritation from the cough. The rash noted in a few cases could be traced to belladonna or serum; it usually occurred late, or after the attack had subsided. In twelve cases he noticed, opposite the second molar, a group of shining round vesicles closely aggregated, the mucous membrane all around being markedly congested. This condition lasted from three to four days.

Allowing for the normal differences in the blood

of children and of adults, the changes in the blood in influenza seemed to be about the same, namely leukopenia and lymphocytosis, the leukocyte count running from 6,000 to 8,400 which, of course, is a leukopenia for children. A leukocytosis takes place on recovery. In most uncomplicated cases the differential count showed a distinct lymphocytosis, although in a few it was normal. The red blood cells were usually below five million. The urine in children as a rule was normal, albumin generally absent.

The question of vaccine therapy still holds the arena. The use of pertussis vaccine is as unsettled now as it ever was. Huenekens¹² found that two to four weeks old pertussis vaccine conferred immunity in from 25 to 75 per cent of cases. Freshly prepared vaccine, employed in the same dosage, shows evidence of antibody formation in 94 per cent of cases. When used in still larger doses,—one, one and one-half, and two billion,—100 per cent positive reactions were obtained. The antibodies were demonstrable within one week after the last injection.

Barenberg¹³ reaches the conclusion that pertussis vaccine, given even in large dosage, not only has no curative effect, but does not tend to lessen the severity of the disease. As regards the prophylactic value of pertussis vaccine, the case is different. In two epidemics the percentage of vaccinated children who developed the disease was considerably less than of those who were not vaccinated. The author emphasizes the fact that in his study it was possible, for the first time, to vaccinate children some weeks before they came in contact with cases of pertussis, and that, therefore, there was no chance of their having been in the incubation stage at the time prophylactic therapy was instituted.

Hess and Unger¹⁴ studied the question of protective therapy for varicella. Thirty-eight children were injected by them intravenously with the contents of chicken-pox vesicles. Of this number only one developed chicken-pox subsequently; the rest did not, although they were all exposed to the disease. The authors believe that the acquisition of immunity indicates that the specific virus is contained in the vesicles.

Findlay persists in his "close air" theory of the causation of rickets. Paton, Findlay, and Watson¹⁵ found that pups kept in the country and freely exercised in the open air remained free of rickets although they had actually a smaller amount of milk fat than those kept in the laboratory, while the animals kept in the laboratory all developed rickets.

⁹ Carr: The Pennsylvania Med. Jour., August 1919.

¹⁰ Montgomery and Dunham: Amer. Jour. of Dis. of Children, September 1919.

¹¹ Levinson: Jour. Infect. Dis., July 1919.

¹² Huenekens: Amer. Jour. of Dis. of Children, July 1918.

¹³ Barenberg: Amer. Jour. of Dis. of Children, July 1918.

¹⁴ Hess and Unger: Amer. Jour. of Dis. of Children, July 1918.

¹⁵ Paton, Findlay and Watson: Brit. Med. Jour., Dec. 7, 1918.

Juvenile diabetes, which was considered fatal, holds out a ray of hope by the three cases reported by Horowitz.¹⁶ The author concludes that diabetes in children is not necessarily fatal and that, if they can be tided over for a certain length of time, they will outgrow the tendency.

Brennemann¹⁷ reviews the literature on rheumatic nodules and expresses the view that pos-

sibly nodules are not found by people because they are easily overlooked. The author attaches special importance to the nodules found on the knuckles. The hand is the only exposed part in this connection. By a glance at the knuckles in such a case, the author has been able to say: "This child has rheumatism; it is probably active; it is severe; he has an endocarditis."

COLLECTIVE ABSTRACT PRESENT DAY PROBLEMS IN OBSTETRICS

BY JOHN T. WILLIAMS, M.D., F.A.C.S., BOSTON, MASS.

IT may be stated as an axiom that the ideal of the practice of obstetrics should be the attainment in every case of the four following conditions: (1) a living mother; (2) a living child; (3) a child normal in every respect and free from injury or disease; and, finally (4) a mother left in good health and able to take her part in the world as well as before her confinement.

Vital statistics show that we are still far from accomplishing the first two of these objects. The maternal and fetal mortality are appalling. The pediatric and gynecologic clinics reveal numerous failures to attain the latter two objects. The purpose of this review is to point out as far as possible where these failures lie, to show what efforts are being made to overcome them, and to enumerate the unsolved problems of present day obstetrics.

MATERNAL MORTALITY IN OBSTETRICS

The statistics of the Metropolitan Life Insurance Co. for the year 1916 show that among more than two and three-fourths millions of women of the child bearing ages, 15 to 44, among its policy holders there were 1,769 deaths from diseases and conditions incident to childbirth. Puerperal infection was responsible for 41 per cent of these deaths; conditions characterized by albuminuria, including both toxemias and chronic nephritis, caused 29 per cent; accidents of labor accounted for 10 per cent, hemorrhage for 8 per cent, and abortions and miscarriages, also, for 8 per cent of the deaths; miscellaneous causes made up the rest.

Harrar¹ collected the statistics for 100,000 cases of labor delivered by the New York Lying-

In Hospital, including both indoor and outdoor departments. In the outdoor department, among 69,081 cases there were 218 deaths, or 0.31 per cent mortality. In the indoor among 23,130 confinements there were 109 deaths, or 0.47 per cent mortality among the regular patients of the clinic; but in the emergency cases sent in by physicians from outside the hospital the maternal mortality rose to 5 per cent. Here again puerperal infection heads the list, being the cause of death twenty-three times in the indoor clinic, and fifty-nine times in the outdoor department. Eclampsia and albuminuria again ranked second with 10 deaths in the indoor and 26 in the outdoor patients. Peritonitis following Cesarean section caused 16 deaths, which should be added to those above given for sepsis. Rupture of the uterus and *placenta praevia* were next in order of frequency. The other causes of death given were nephritis, cardiac decompensation, pneumonia, shock and hemorrhage following Cesarean section, shock and exhaustion, postpartum hemorrhage, pulmonary tuberculosis, toxemia without convulsions, accidental, abdominal pregnancy, rupture of vaginal vault, pulmonary embolism and thrombosis, suicide in acute mania, carcinomatosis, brain tumor, sarcoma of liver, ether and chloroform narcosis, and unknown.

Infection the Chief Cause of Death

DeLee² states that in the registration area of the United States 10,518 women died from childbirth during the year 1914; at least 4,664 of these died from puerperal infection. Lobenstine³ quotes the death rate from childbirth in the United States as 14.9 per 100,000 of total population.

¹⁶ Horowitz: New York Med. Jour., August 30, 1919.

¹⁷ Brennemann: Am. Jour. of Dis. of Children, Sept. 1919.

¹ Harrar, Am. Jour. Obst., 1918, lxxvii, 38.

² DeLee, Am. Jour. Obst., 1917, lxxvi, 15.

³ Lobenstine, Am. Jour. Obst., 1917, lxxvi, 381.

These figures demonstrate the existence of a considerable maternal mortality in obstetrics. In spite of modern aseptic technic the chief cause of death in childbirth is still puerperal infection. Though the work of Pasteur, of Holmes, and of Semmelweis has produced an enormous reduction in the incidence of puerperal infection and has effected a wonderful saving of human life, the wastage of womanhood from this cause has not been eliminated. It may be said fairly that, in the author's estimation, no small part of the incidence of infection is due to the failure to carry out well known and commonly understood aseptic methods, such as shaving the vulva, adequate scrubbing before every examination, avoidance of unnecessary examinations, etc. The writer recently reviewed an otherwise admirable textbook of obstetrics in which the author stated his conviction that shaving the vulva is unnecessary. That same author, although he advised just as careful preparation of the obstetrician's hands for a delivery as for an abdominal operation, was satisfied to operate through a field prepared in a manner that he would not have tolerated for an abdominal section.

However, even at the hands of men whose aseptic technique is as careful as it is possible to make it sepsis has not been altogether eliminated. The conduct of labor without vaginal examinations as advocated by Green⁴ or the substitution of the rectal for the vaginal examinations advised by DeLee⁵ and others has definite place in the prophylaxis of puerperal infection. It is certain, however, that infecting organisms may gain access to the vagina in other ways than on the examining finger. DeLee⁶ gives an excellent discussion of these methods of transmission. He found that the least number of postpartum fevers occurred in patients cared for at home; the next smallest number in those cared for in a hospital limited to clean maternity cases, and much the largest number in those delivered in general hospitals. The aseptic technic was the same in all cases.

Epidemics of Infection

The occurrence of epidemics of infection in lying-in hospitals is a well recognized fact. Therefore, it is not sufficient simply to maintain excellent aseptic technic in the delivery room. The patient must be guarded from exposure to possible sources of infection before and after delivery as well. Among the less common sources of infection which must be recognized and guarded against are the entrance of dirty water

in the vagina during the bath, coitus during the last weeks of pregnancy, transmission of pyogenic organisms from a focus elsewhere on the patient's own body, contamination from infected bed pans, bed clothing, or mattress.

As regards the treatment of puerperal infection recent literature is barren. In the past nearly every conceivable form of surgical intervention has been tried: curettage, instrumental and digital, incision of the posterior culdesac followed by packing with iodoform gauze, ligation of the internal iliac and ovarian veins, and even hysterectomy. Practically all these procedures have been abandoned, and the surgery of puerperal sepsis is to-day limited to the evacuation of localized collections of pus.

Following the failure of purely surgical methods there came an era devoted to attempts to reach the infection by systemic measures. The intravenous use of silver salts, bichlorid of mercury formalin, magnesium sulphate and latterly, arsenobenzol⁷ have all been tried. Anti-streptococcal serum, vaccines, and, more recently, transfusion have been employed but without success. The bad results of many of these methods of treatment has caused a great wave of conservatism to sweep the obstetrical world, and attention is now limited to increasing the patient's natural powers of resistance. The outdoor treatment of puerperal infection which was first advocated by Stone⁸ of New York, and Young¹⁰ of Boston, and later by DeLee⁹ has a decided value. At the Boston City Hospital¹⁰ following the introduction of the outdoor treatment the mortality of puerperal infection was reduced one-half.

Conservative Methods Indicated

If the present conservative methods fail to save a certain percentage of the cases of puerperal infection, there is little doubt that many of the measures enumerated, especially the surgical procedures, have increased rather than diminished mortality in the past. One of the hardest things an obstetrician has to do is to refrain from active treatment in a case of puerperal infection when he is convinced that active measures can do only harm. The family demand that something be done, and are satisfied if something is being done even if it takes away the patient's only chance. Only the most conscientious firmness and the greatest moral courage on the part of the obstetrician are sufficient to keep him from being driven into some injudicious surgical interference against his better judgment by the importunities of the patient's family.

⁴ Green, Boston Med. and Surg. Jour., 1913, clviii, 525.
⁵ DeLee, Princip. and Practice of Obstetrics, 1916, p. 295.
⁶ DeLee, Prin. and Pract. of Obstetrics, 1916, p. 843.

⁷ Miller and Chalfant, Am. Jour. Obst., 1918, Ixxviii, 395.

⁸ Stone, Med. Rec., New York, 1907, Ixxi, 246.

⁹ DeLee, Principles and Practice of Obstetrics, 1916, p. 899.

¹⁰ Young and Williams, Boston Med. and Surg. Jour., 1912, clxvi, 40.

Eclampsia and allied conditions constitute the second most common cause of death in child-birth. Nevertheless there has been a great reduction in the mortality of these conditions. In 1906 Williams¹¹ quoted the maternal mortality of eclampsia as 20 to 30 per cent. These figures were certainly conservative for the lines of treatment followed at that time, which consisted of two extremes: the Stroganoff treatment with morphia in large doses and no attempt at delivery; and the *accouchement forc * with its high percentage of shock and rupture of the uterus. Young,¹² for the Boston City Hospital, shows a reduction from 36 per cent mortality for *accouchement forc * to about 25 per cent for cases treated by the induction of labor by the Vorhees bag. Similarly Cragin¹³ gives the following figures from the Sloane Maternity Hospital. In the first 20,000 cases delivered at the hospital there were 251 cases of eclampsia with 71 deaths, a mortality of 28.3 per cent. In the subsequent 15,774 deliveries there were 138 eclamptics with 20 deaths, or 14.5 per cent mortality. Cragin attributed this reduction in mortality to a change from *accouchement forc * to bag induction, combined with colon irrigations and the use of chloral by rectum.

The Handling of Eclampsia

In discussing the treatment of eclampsia at the present day it is no longer necessary to consider either the absolutely conservative expectant treatment or *accouchement forc * since both have been definitely discarded. There is one fact in connection with eclampsia which has been established beyond all question: that the condition is due directly to the presence of the fetus in the uterus, and that removal of the fetus always results in a cure unless death is due directly to the operative procedure by which the fetus is delivered, or unless a sufficient accumulation of toxins has already taken place in the maternal system to cause death even if the absorption of further toxins is prevented.

Only two methods of delivery need be considered seriously: the induction of labor by bag or bougie, and abdominal Cesarean section. A very small percentage of cases may perhaps be better delivered by vaginal Cesarean, but this does not enter into competition with the first two as a routine method. Unfortunately, no one operator has reported any considerable number of personal cases of eclampsia delivered by Cesarean section and our statistics are all therefore com-

posite, based upon the experience of a number of operators. Peterson¹⁴ collected reports of 283 recent cases of Cesarean section for eclampsia with a maternal mortality of 25.79 per cent. At first sight it would appear that Cesarean section does not compare favorably with bag induction as a means of delivery, but, when considered more carefully, it is apparent that there are certain types of cases where better results are to be expected from Cesarean than from the induction of labor. These types would be: (1) where age or pelvic contraction would lead one to expect a difficult delivery by the natural passages, and (2) where extreme haste is necessitated by the rapid progress of the toxemia. It is probable that the future will result in a sharp delineation of the boundaries within which lie the indications for each procedure.

Search for Toxic Principle

Further progress than can be made in the prompt recognition and delivery of these cases must await the discovery of the chemical substance or substances which constitute the toxins of eclampsia. Although investigators have not been idle in researches dealing with the chemical aspects of eclampsia, beyond demonstrating minor chemical changes in the blood they have not achieved important results. Plass¹⁵ demonstrated that in true eclamptics with liver changes there is little alteration in the nitrogen constituents of the blood, but in renal cases there is always a decreased total nitrogen while the relation of the non-coagulable nitrogen (urea, creatin, lecithin and ammonium salts) to the total nitrogen is decidedly increased. Plass has also demonstrated that creatin and creatinin pass to and from maternal and fetal circulation by diffusion.

Morriss¹⁶ studied the blood sugar with relation to placental interchange. He found that the blood sugar was normal in the first stage of labor and in pre-eclamptic toxemia but that following the muscular efforts of the second stage, or following a convulsion in eclampsia, it became increased. The fetal blood sugar at birth is lower than the maternal. Emge¹⁷ studied the acidity of the blood in normal pregnancy and in toxemias. He found a slight acidosis connected with normal pregnancy which is not increased in toxemia but is somewhat increased by muscular activity as in the second stage of labor and after eclamptic convulsions. This gives a rapid glimpse into one of the most fascinating fields for obstetric investigation which may one day lead to the isolation of the toxin of eclampsia.

¹¹ Williams, *Obstetrics*, 1906, p. 705.

¹² Young, *Boston Med. and Surg. Jour.*, 1917, clxxvi, 486.

¹³ Cragin, *Am. Jour. Obst.*, 1917, lxxvi, 211.

¹⁴ Peterson, *Am. Jour. Obst.*, 1914, lix, 581.

¹⁵ Plass, *Bull. Johns Hopkins Hosp.*, 1917, xxviii, 137.

¹⁶ Morriss, *Bull. Johns Hopkins Hosp.*, 1917, xxviii, 140.

¹⁷ Emge, *Am. Jour. Obst.*, 1918, lxxvii, 813.

Next in importance to sepsis and eclampsia as a cause of maternal death from childbirth come the accidentals of labor, especially rupture of the uterus. Only better obstetric training, and more careful conduct of labor, can be expected to reduce the incidence and therefore the mortality of these unfortunate mishaps. Next in frequency comes hemorrhage, especially hemorrhage from placenta praevia. There is a marked similarity in the obstetrical treatment of placenta praevia and eclampsia. In both instances delivery of the fetus from the mother is the foundation of treatment. In both conditions the same methods of delivery enter into competition, namely, induction of labor with bag and Cesarean section, save that in placenta praevia a third method, Braxton Hicks version, has also to be considered.

At the Seventh International Congress at London in 1913 Doderlein stated that in Bavaria from 1878 to 1907, there were 8,729 cases of placenta praevia, for the most part first attended by midwives, with a maternal mortality of 19 per cent. In a total of 5,615 cases collected from reports by obstetricians of different countries there was a mortality of 8 per cent. This he analyzed according to treatment as follows:

<i>Method</i>	<i>Cases</i>	<i>Mortality</i>
Simple rupture of membranes.....	309	1 %
Braxton Hicks version	1,434	8 %
Bag induction	777	6.5 %
Cesarean section	145	9 %

It is of course evident, as it was in the case of eclampsia, that no one treatment is applicable for all the cases. Given an uninfected patient, at the beginning of the hemorrhage, with a central, or in some instances with a partial, placenta praevia, with a child near term, and especially in the somewhat rare instances of placenta praevia in a primipara Cesarean section is almost unquestionably indicated; but it is comparatively seldom that the patient fulfills all these requirements. In the majority of the cases one of the other methods must be selected. Boyd¹⁸ in 8,697 deliveries at the Philadelphia Lying-in Charity Hospital found 59 cases of placenta praevia. Only two were delivered by Cesarean, with one death and one recovery. The remaining cases were delivered for the most part by tamponade followed by version or forceps with six deaths.

Cardiac Disease and Pregnancy

The importance of cardiac disease as a complication of pregnancy and labor has hardly been recognized, yet after the major obstetric complications just discussed it holds next rank as a cause of maternal death. The danger of a cardiac lesion depends in part upon the nature of the

lesion (all authorities agree that mitral stenosis is by far the most serious) and to a greater extent upon the degree to which the lesion is compensated. Newell¹⁹ believes that if a heart has become decompensated previous to the occurrence of conception that the heart can not stand the additional strain of pregnancy, and that the pregnancy in such a case should be terminated at once. In all cases in which there is a demonstrable cardiac lesion labor should be shortened to relieve strain on the heart. Kellogg²⁰ found in 30,000 pregnancies from 1 to 2 per cent of cardiac disease. He formulated a rather elaborate schedule for the treatment of these cases based upon the nature of the lesion. C. H. Lawrence²¹ believes that the presence or absence of decompensation is the only criterion upon which the treatment of such cases can be based.

Space forbids a discussion of the remaining causes of maternal death in pregnancy in labor. Many of them are accidental and inevitable, yet no doubt better medical treatment and more thorough study of these as well would result in a considerable reduction of the maternal death rate.

FETAL MORTALITY IN OBSTETRICS

Lobenstine²² estimated the percentage of stillbirths in New York City during the year 1916 as 4.61 per cent of the total births. The Women's Coöperative Guild of London²³, in a study of 348 families, found a history of 1,396 living children, 83 stillbirths, and 218 miscarriages. In other words, for every 100 pregnancies successfully terminated by the birth of a living child there were 21 $\frac{1}{2}$ which terminated in failure.

Miller²⁴ gives the following statistics for Philadelphia: He tabulated the stillbirths for a period of ten years from 1906 to 1916. The average yearly number of stillbirths due to injury at delivery was about 1.95 to every 1,000 births. In the year 1916 this figure rose to 3 per 1,000. The total stillbirths to total births varied from one in every 18.7 births in 1906 to one in every 27.2 births in 1916. He analyzed the causes of 100 stillbirths; 36 were due to prematurity, 4 to syphilis, 5 to birth injury, 3 to strangulation of the cord, 1 to hydramnion, and 1 to eclampsia. In the remaining 50 no definite diagnosis could be made on the information furnished.

The Wastage from Premature Birth

The wastage of infant life from premature birth is tremendous. Miller estimated the proportion of premature to total births as from 1.69

¹⁸ Boyd, Am. Jour. Obst., 1917, Ixxvi, 26.

¹⁹ Newell, Jour. Am. Med. Assn., 1912, Ix, 1147.

²⁰ Kellogg, Boston Med. and Surg. Jour., 1917, clxxvii, 398.

²¹ Lawrence, Boston Med. and Surg. Jour., 1916, clxxv, 858.

²² Lobenstine, Am. Jour. Obst., 1917, Ixxvi, 393.

²³ Maternity, London, 1915.

²⁴ Miller, Am. Jour. Obst., 1917, Ixxvi, 615.

to 1.64. The reviewer has been struck with a similar experience at the Boston City Hospital obstetric ward. In 367 births during the year 1918, he found 93 premature, among which 48 died at birth or before leaving the hospital, i. e., 25 per cent of total births premature and 50 per cent of prematures died.

The influence of syphilis as a cause of stillbirth has long been recognized and may be accepted as accounting for a large percentage of the stillbirths occurring after a normal labor. Chronic nephritis is also a prolific cause of fetal death *in utero*. The fetal death rate in eclampsia is variously given as 33 per cent by Young¹², 44.9 per cent by Cragin¹³, 19 percent by McPherson²⁵, and 30 to 60 per cent by DeLee²⁶. It is doubtful if this fetal death rate in eclampsia will be greatly reduced until the chemistry of the toxemia is more fully worked out as the babies delivered from eclamptic mothers are usually premature and always more or less toxic. Placenta praevia also has a high fetal death rate, the issue in the individual case depending chiefly upon three factors: the period of pregnancy, the amount of hemorrhage, and the method of delivery. Doderlein* in the 8,729 Bavarian cases found a fetal mortality of 50 per cent. In his collected series of patients treated by obstetricians he found that the fetal mortality varied from 25 per cent in the cases which could be treated by simple rupture of the membranes, 30 per cent in those delivered by Cesarean section, 45 per cent in those delivered by induction of labor, to 74 per cent where Braxton Hicks version was employed. Boyd¹⁴ in 59 cases at the Philadelphia Lying-in Charity Hospital had a fetal death rate of 79 per cent, but only 50 per cent of the babies delivered were viable anyway. It is hard to see how the fetal mortality in placenta praevia can be greatly improved. The very character of the condition imperils the child's life even sooner than the mother's.

Placental Bacteriemia and Stillbirth

Attention is now being drawn to placental bacteriemia as a cause of stillbirth. The infectious abortion of cattle had been recognized as a specific infectious disease even before Bang²⁷ in 1897 isolated the *bacillus abortus* and demonstrated it as the infecting organism. The symptoms of this disease which occurs in epidemics are those of septicemia associated with the death of the fetus *in utero*. The death rate of the mothers as well as of the embryos is very high. There is no evi-

dence that the *Bacillus abortus* is pathogenic for human beings, although DeForrest²⁸ reported 11 cases of stillbirth in women with symptoms suggesting the infectious abortion of cattle, and who during their pregnancies had been more or less directly exposed to surroundings in which there had been cattle sick with disease. In one case a bacteriological examination was made but the *Bacillus abortus* was not found.

Slemons²⁹ has studied the histological picture of the placenta in 34 cases of placental bacteriemia. Typically the bacteria are found in the subamniotic connective tissue sinuses where they come in contact with the fetal vessels which cross the placenta. It was occasionally possible to demonstrate the bacteria in the act of penetrating the walls of the vessels. In most cases the epithelium of the villi was intact. The capillaries in the villi did not contain bacteria. It is thus evident that infection did not proceed from the maternal circulation. The bacteria enter the placenta by way of the amniotic membrane and amniotic fluid. Generally the latter becomes infected because the membranes rupture prematurely, labor is prolonged, and repeated vaginal examinations are made. As placental infection is usually limited to the amniotic surface of the placenta, this complication is more serious for the infant than for the mother. Not infrequently such infection of the fetus leads to its death either before or soon after birth. Slemons believes that placental bacteriemia is out-ranked only by syphilis as a cause of fetal death. In one series of 100 labors placental bacteriemia was noted 24 times. Elevation of temperature is always significant of placental bacteriemia.

Cornell³⁰ reported an interesting case in this connection. The patient, a quadripara, age 29, had been delivered of a breech, living baby, at end of her first pregnancy. The second and third were stillborn, cause unknown. Being pregnant for the fourth time fetal death *in utero* was diagnosed. Culture taken from the cervix uteri at this time showed staphylococci, a Gram-positive diplococcus resembling streptococcus viridans, and diphtheroids. Cultures from the throat showed occasional staphylococcus and streptococcus viridans. Culture from the teeth showed staphylococcus-streptococcus viridans, the usual anaerobes, bacillus fusiformis, diphtheroids and streptococci. Three weeks later a macerated fetus was delivered. The fetus and placenta were examined bacteriologically. The placenta showed Gram-negative bacilli, and spore-bearing Gram-positive bacilli, both saprophytic. Similar organisms were

*Doderlein: Loc. Cit.

²⁵ McPherson, Am. Jour. Obst., 1918, lxxvii, 58.

²⁶ DeLee, Principles and Practice of Obstetrics, 1916, p. 373.

²⁷ Bang, Ztschr. Tiermed., 1897, 5, 241.

²⁸ DeForrest, Am. Jour. Obst., 1918, lxxviii, 321.

²⁹ Slemons, Am. Jour. Obst., 1918, lxxviii, 321.

³⁰ Cornell, Illinois Med. Jour., Springfield, 1918, xxiv, 266.

found in the liver and body fluids. In the latter, diphtheroids were also found but no streptococci and no spirochaetae.

The mother made a good recovery, having no temperature higher than 99.5. The fetal death was undoubtedly due to placental bacteriemia, but Slemmons' conclusions that infection enters through the amniotic surface of the placenta can hardly hold true here. Nevertheless, an important cause of stillbirth has been recognized, and further study will no doubt result in measures for its control.

Mechanical Injuries in Labor

After the consideration of fetal deaths due to disease in the fetus or mother we next come logically to the fetal mortality the result of mechanical injury during labor. The reviewer³¹, in 1916, collected the reports of the results of delivery by the intrapelvic operations, forceps, version, etc., in eight clinics. In a total of 2,936 such operative deliveries there was a fetal mortality of 17.2 per cent. To overcome the dangers of these hard intrapelvic deliveries to the child the operation of Cesarean section was devised over three centuries ago and first performed so far as we know by Trautmann, of Wittenberg. Cesarean section, while, accident excepted, guarantees a living child, has a definite maternal mortality. This mortality in certain cases is a decidedly high one. Therefore, other operations have been devised to overcome the danger incident to Cesarean section in late and infected cases: pubiotomy and the extraperitoneal Cesarean section. The consideration of these operations therefore, may be properly taken up under the general subject of infant mortality since they are all designed to reduce it.

Dangers of Cesarian Section

If the maternal mortality of Cesarean section were zero, all cases where the forces of nature fail would be delivered by Cesarean, thus saving all the babies, and this part of the problem would be solved. The reviewer, in the paper above mentioned, collected also the reports of 849 Cesarean sections done under favorable conditions with a maternal mortality of only 1.6 per cent. On the other hand, Newell³² collected the results of Cesarean section in various New England cities where the operation had been performed on badly selected cases and by inexperienced operators. He concluded that the actual mortality was about 10 per cent. Rongy³³ reported 109 personal cases with a mortality of 7 per cent, but his cases were for the most part consultation cases done after

failure of the natural forces, and included some eclamptics which should not be considered properly in this place.

To reduce the dangers of Cesarean section in late and infected cases the extraperitoneal operation was devised by Frank in 1906 and modified by Sellheim in 1907. According to Nicholson³⁴, there are now about twenty different techniques for the extraperitoneal operation. These may be subdivided into (1) transperitoneal operations in which the peritoneum is opened, stripped off the anterior surface of the lower segment of the uterus and the uterine peritoneum united to the parietal peritoneum before the uterus is opened; and (2) true extraperitoneal in which the approach is made through the pelvic cellular tissue at the side of the bladder, without going through the peritoneum. As a matter of fact, the peritoneum is very frequently opened in the attempt to operate by this latter method. In 255 cases collected up to 1916³⁵, the maternal mortality was 3.5 per cent, which was good considering that in most of these the classic Cesarean was contraindicated by long labor or infection. De Lee³⁶ has obtained the most recent figures. He sent out a questionnaire to ten well known operators. In reply he received statistics of 39 true extraperitoneal operations with 4 maternal deaths, and 117 transperitoneal with 1 death. Reusch³⁷ collected 595 European cases with 2 per cent mortality.

Methods of Pubiotomy

Pubiotomy has never been received with enthusiasm in America. Jacobson³⁸ in 1912 was able to collect only 53 American cases. Recently Williams³⁹ has reported a series of 43 operations performed at the Johns Hopkins Hospital on 40 women without maternal death. The semi-subcutaneous method of Doderlein was used after a prolonged test of labor in the second stage. The operation was restricted to patients presenting moderate degrees of pelvic contraction, the smallest pelvis having a *conjugata vera* of 7 cm. In one-half of his cases there were vaginal tears, and in two bladder injury. He tries for fibrous rather than bony union in order permanently to enlarge the pelvis. The increase he found was greatest in the transverse diameter of the outlet which makes the operation of most value in funnel pelvises. Twenty of his 40 patients were subsequently delivered by the natural passages without difficulty, their pelvises being permanently increased in size. Eleven pelvises were markedly enlarged, the aver-

³¹ Rongy, Am. Jour. Obst., 1918, Ixxviii, 840.

³² Nicholson, Surg. Gynec. and Obst., 1914, xviii, 244.

³³ DeLee, Jour. Am. Med. Assn., 1919, Ixxiiii, 91.

³⁴ Rensch, Zentralbl. f. Gynäk., xli, 595.

³⁵ Jacobson, Surg. Gynec. and Obst., 1912, xv, 213.

³⁶ Williams, Am. Jour. Obst., 1915, Ixxii, 1.

age increase being 1.8 cm. in the transverse diameter of the outlet. In several pelvies not only were the diameters increased, but the shape was also changed.

Jellett⁴⁰ has recently advocated what he calls "The Radical Cure of Pelvic Deformity" by which he means performing pubiotomy in advance of labor or even in advance of pregnancy. I mention this in order to condemn it. It is universally admitted that pubiotomy should be restricted to moderate degrees of pelvic contraction. It is also a well known fact that labor terminates spontaneously in 75 to 80 per cent of such pelvies (Williams⁴¹) so that if one performs pubiotomy in advance of labor in all cases of pelvic contraction, the operation will be done needlessly in 75 to 80 per cent. Jellett reported 35 pubiotomies from the Rotunda Hospital with two deaths. Eleven of these patients were subsequently delivered of living babies by forceps, version, or normal labor, testifying to the permanent increase in the size of the pelvis, but not justifying the wholesale performance of the operation without a test of labor. The problems of the obstetrician are not ended with the birth of a living child. Ballantyne⁴² has shown that one-third to one-half of the children dying under one year of age die during the first month, during which time they are ordinarily under the care of the obstetrician. McConnell⁴³ states that in Glasgow from 1909 to 1912 the death rate of infants during the first four weeks was 44.33 per 1,000 live births. Upon scarcely any subject in medicine has so little thought been expended as on the infant mortality during the intrauterine period and the first four weeks of life.

INFANT MORBIDITY

From a purely economic standpoint the birth of a child free from injury is of even greater importance than the birth of a living child, for a dead or stillborn child is a loss to the state but a child crippled either physically or mentally is not only a loss but also a liability.

Frazier⁴⁴ believes that 30 per cent of all children who recover from cerebral hemorrhage at birth develop epilepsy later in life. Mouser⁴⁵ found that 17.64 per cent of his cases of epilepsy had a history of difficult birth. In cases of idiocy he found that 11.6 per cent had a history of difficult birth. Shuttleworth⁴⁶ put the figure at 29 per cent.

⁴⁰ Jellett, *Surg., Gynec. and Obst.*, 1919, xxix, 117.

⁴¹ Williams, *Surg., Gynec. and Obst.*, 1917, xxv, 194.

⁴² Ballantyne, *Monthly Bull. Mass. State Dep. Health*, 1919, vi, 166.

⁴³ McConnell, *Brit. Med. Jour.*, 1918, ii, 365.

⁴⁴ Frazier, *Progr. Med.*, 1907, i, 24.

⁴⁵ Mouser, Quoted by Porter, *Jour. Am. Med. Assn.*, 1909, lii, 937.

⁴⁶ Shuttleworth, *Brit. Med. Jour.*, 1886, i, 183.

⁴⁷ Stein, *Jour. Am. Med. Assn.*, 1917, lxix, 334.

Stein⁴⁷ discussed in an admirable article the influence of labor on the brain development of the child. He said: "Instrumental delivery, more particularly by the obstetric forceps, has often been accused of being the cause of birth traumatism, and has undoubtedly caused serious mutilation in the hands of the unskilled; but its action can never be so prolonged or profound as the moulding of the soft cranial bones in very narrow or otherwise obstructed pelvic passages."

Difficult Labor and Mentality of Child

Difficult labors cause damage to the child's brain through three mechanical processes: (1) direct contusion of brain substance; (2) local congestion and rupture of the intracranial vessels by over-riding of parietal bones; and (3) general congestion of the venous system resulting in capillary hemorrhage.

Stein concluded that (1) prolonged labor is responsible for much harmful compression during labor; (2) the damage results in the production of all degrees of mental impairment from feeble-mindedness to idiocy. (4) In the interest of the prevention of idiocy better records should be kept of the conditions during labor and the subsequent mental development of the children. Obstetric forceps, correctly applied, are less dangerous than the prolonged passage of the child's head through the pelvic canal.

Goddard⁴⁸ says that since many normal children are delivered with the use of instruments and the temporary deformity of the head is without effect on mentality, it is unreasonable to conclude that where there is both hereditary feeble-mindedness and a history of instrumental delivery that the instruments were the cause of the mental deficiency.

Sachs⁴⁹ found idiocy present in 60 per cent of paraplegias, and 13 per cent of hemiplegias. He described the case of a child born after a hard, dry labor and presenting symptoms of mental impairment. The child died when a year old and autopsy showed adherence of the pia over the frontal halves of both hemispheres.

Fletcher Beach⁵⁰ found a history of prolonged parturition in 27.28 per cent of idiocy, but in only 3.3 per cent were forceps used. In the Darenth Asylum for Imbecile Children, among 810 cases of idiocy there were 4.3 per cent who had been delivered by forceps, but 26.6 per cent had been delivered normally after a prolonged labor. König⁵¹, in 260 cases of simple idiocy, found 39 cases of difficult birth, all but five of which were spontaneous, however.

⁴⁷ Goddard, *Feeble-mindedness, Its Causes, etc.* N. Y., 1914, 447.

⁴⁸ Sachs, *New York Med. Jour.*, 1891, iii, 503.

⁴⁹ Beach, *Lancet*, London, 1889, i, 97.

⁵⁰ König, *Allg. Ztschr. f. Psychiat.*, 1904, xlii, 133.

From these various figures quoted it is apparent that, after hereditary causes, difficult delivery forms a large etiological factor in mental impairment. It is not evident, however, that traumatism with the obstetric forceps has been the cause of such cerebral injury, but rather the prolonged pressure of the child's head against the pelvis. The earlier employment of the obstetric forceps would perhaps have prevented many of these cases; but the real aim of the obstetrician should be to anticipate these difficult deliveries by the early performance of Cesarean section when it is apparent that labor will be prolonged and difficult.

While less serious from an economic and humanitarian point of view, since it is not connected with any mental impairment, but of very great importance, since it partially cripples the unfortunate subject, injury of the brachial plexus during delivery deserves serious consideration. Thomas and Sever⁵¹ give an excellent summary of previous work on this condition together with their own experience. They conclude that in the great majority of cases the paralysis is due to injury of the brachial plexus by stretching. They reject absolutely the theory of Gaugele⁵² that birth palsies are not true paralysis, but due to injury of the capsule of the shoulder joint with subsequent contractures. In 109 x-rays taken in Thomas' clinic only one fracture each of the clavicle and humerus were seen in obstetrical paralyses. The stretching of the brachial plexus which produces the paralysis may result from the delivery of extended arms when the fetus presents by the breech or, more commonly, because vertex presentations are more common, results from difficulty in freeing the shoulders after birth of the head. This difficulty is the result, in the reviewer's experience, of resistance from a contracted outlet with a v-shaped arch or, less commonly, from a contraction ring closing down about the neck after birth of the head. The anterior shoulder is practically always the one affected.

When such paralysis occurs the child should be at once put under the care of a competent neurologist, as Thomas has shown that in nearly all cases the muscles gradually recover voluntary control and, if contractures can be prevented and re-education of the paralyzed muscles carried out, function can in most cases be restored.

MATERNAL MORBIDITY IN OBSTETRICS

It may be stated without fear of contradiction that the maternal morbidity in obstetrics de-

creases in direct proportion with the amount and quality of the care bestowed upon the patient before, during, and after labor. Prenatal care is of comparatively recent origin. Postnatal care, extending beyond the hospital period of two weeks at most, is even yet limited largely to the well-to-do private patients. While all well equipped maternity hospitals in the large centers have prenatal clinics, these care for only a small part of the women of the world and it may be of interest to review such beginnings as have been made toward the extension of prenatal care to less fortunate districts.

Belt⁵³ has contributed an interesting article on this subject especially in regard to work done in England, France, and Germany during the war. July 30, 1914, the Local Government Board for England and Wales issued circulars in regard to grants which would be made by it for maternity work, offering to county councils and sanitary authorities one-half the expense of carrying on the following work:

1. Arrangements for the local supervision of midwives.
2. Arrangements for antenatal clinics, antenatal home visits, and maternity hospitals for the care of complicated cases of pregnancy.
3. Arrangements for skilled assistance during confinement, if necessary in a hospital.
4. Arrangements for the treatment in a hospital of complicated cases after confinement, systematic infant clinics, clinics for young children, and systematic visitation of the homes of infants and young children.

In 1915 and 1916 the same offer was made. In a majority of the districts some child welfare work is done and some maternity centers are under way, but no prenatal work has been done as yet except by private agency.

In Paris during the year 95 per cent of the women were delivered by public aid, not necessarily by midwives. In Germany 90 per cent of the women were delivered by midwives. In America there is no real midwife problem for, while the immigrant women are in large number attended by midwives, the generation of women who have been born here and educated in the public schools will not tolerate the midwife, and the midwife will automatically disappear.

Maternity Benefits from the State

The subject of maternity aid from the state has aroused much discussion. Belt states that the national insurance acts in England passed in 1911

⁵¹ Thomas and Sever, Jour. Nerv. and Ment. Dis., 1916, xlii, 289.

⁵² Gaugele, Ztschr. f. Orthop., Chir., 1914, xxxiv, 511.

⁵³ Belt, Am. Jour. Obst., 1918, lxxvii, 174.

and 1912 allow two maternity benefits of thirty shillings each, the second one payable only if the woman refrains from work outside her home for four weeks following confinement. The French maternity grants allow 10 to 25 cents a day over a period of eight weeks. Maternity benefits established in Germany in 1911 allow \$5.95 toward the expense of the confinement, 24 cents a day for eight weeks, six of which must be after the confinement, \$2.38 prior to the confinement for midwife or doctor, and premiums of 12 cents a day until the twelfth week for nursing mothers.

In this connection the investigations of Deacon⁵⁴ into the employment of pregnant women in munition factories are of interest. In one factory he found 101 women employees pregnant. At the time of his report 46 had terminated successfully, 34 were still pregnant but 19 were later delivered without trouble, the remainder being still pregnant. Only two premature births were reported and of these one mother had syphilis and the other carcinoma. There were 13 early abortions, no more than the usual proportion under ordinary circumstances.

After Care in Maternity Cases

Too little has been done to follow up the treatment of minor complications of childbirths, such as small lacerations, prolapses, subinvolution, etc., until the patient is restored as nearly as possible to a state of efficiency equal to that before confinement.

The New York Lying-in Hospital has established a clinic for the after care of its patients. Every obstetric patient of the hospital is given a card to this clinic on discharge and told to report to it. Smith⁵⁵ reports observation made in this clinic over a period of one year; 289 patients returned to the clinic for advice or treatment. During the first month 81 patients reported, the most common disorders being subinvolution, unhealed perineal lacerations, hemorrhoids, and retroversion; 92 patients came back during the second month after delivery. Here troubles with the breasts and nipples, subinvolution, rectal disturbances, perineal lacerations and back-strain predominated. Thirty-eight patients presented themselves during the third month after delivery; the most common complaint among these was retroversion. In the fourth month 39 patients presented largely adnexal and perimetric conditions. In the fifth and sixth months 39 patients returned for the most part concerned over a possible diagnosis of pregnancy.

There is some difference of opinions to how

much immediate repair work should be undertaken at the time of delivery or during the puerperium. Most obstetricians and all general practitioners confine repair work at this time to the immediate suture of perineal lacerations. A very few, like Skeel⁵⁶, advise the repair of every tear of the genital tract immediately after labor and report excellent results. The arguments against such procedures are the difficulty of technic, which can be overcome by proper assistants and good illumination, however, and the fact that much of the damage done in delivery is not in the form of clean cut lacerations but rather in subcutaneous rupture of fascial bands and muscle fibers, and, furthermore that failure of involution results in more permanent harm than unsutured lacerations.

The work of Hirst⁵⁷, however, who has for many years done what he calls the *intermediate* repair of lacerations, is deserving of consideration. He does not attempt to repair lacerations immediately after labor, but in those patients who require repair he operates one week after delivery, at which time the edema of the parts has gone down, the tissues can be approximated perfectly, and the lochial discharge has diminished sufficiently so that the operation can be conducted without having the field constantly obscured by blood. The argument against this method is purely one of expediency but, unfortunately, one which is very powerful, namely, that few patients will consent to such an operation one week after having gone through the exhaustion and suffering of labor.

Conclusion

The perusal of the foregoing review can not fail to impress the reader with the vast amount of work remaining to be done before the present day problems in obstetrics shall be solved. In spite of the vast benefit which has resulted from the introduction of asepsis and anesthesia in obstetrics, and, admitting the undoubted advances of recent years, our results are still far from perfect and a wide field of investigation, including not only problems for the obstetrician, but for the chemist, the pathologist, the sociologist, and even the legislator lie open to the future.

THIRD HOSPITAL SURVEY BEING MADE

A reliable list of hospitals which can furnish a satisfactory intern training is the immediate end sought for by the American Medical Association in its third survey of hospitals, which is now being made. A mass of information on the subject has been obtained by the Association through wide-spread correspondence and a questionnaire. This data is being carefully checked.

⁵⁴ Deacon, Lancet, London, 1918, cxcv, 311.

⁵⁵ Smith, Bull. Lying-In Hosp., N. Y., 1917, xi, 193.

⁵⁶ Skeel, Am. Jour. Obst., 1919, Ixxix, 1.

⁵⁷ Hirst, Am. Jour. Obst., 1917, lxxvi, 50.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

PERSONAL HYGIENE AND HOME NURSING. A practical text for girls and women for home and school use. By Louisa C. Lippitt, R.N., assistant professor of corrective exercises, University of Wisconsin.*

This small book is an admirable guide for those interested in the care of the adolescent girl. The articles are well written and are based on accepted principles of rational hygiene.

It should prove an excellent text for use in secondary schools and colleges.

HYGIENE FOR NURSES. By Nolie Mumey, M.D., lecturer in hygiene, chemistry, and bacteriology, Logan H. Roots Memorial (City Hospital) Training School; assistant instructor in surgical technic, University of Arkansas; resident physician of City Hospital and a member of the visiting staff, Little Rock, Ark.†

We fail to see the particular value of this book among the already too numerous works on the subject. It will hardly find a favorable reception in the better training schools owing to many of its inaccurate phrases, such as, on page 380, "bacteria alone are responsible for all of our diseases" or, on page 40, "Jews are immune from tuberculosis."

The printing is clear and there are a few good pictures, but the book necessitates a thorough overhauling before it can be conscientiously recommended as a reliable text book.

THE DIAGNOSTICS AND TREATMENT OF TROPICAL DISEASES. By E. R. Stitt, A.B., Ph.G., M.D., LL.D., Rear Admiral, Medical Corps, United States Navy; Commanding Officer and Head of Department of Tropical Medicine, United States Naval Medical School; graduate London School of Tropical Medicine; professor of Tropical Medicine, Georgetown University; professor of Tropical Medicine, George Washington University, etc.‡

The popularity of this text is justly shown by the complete exhaustion of the second edition which appeared less than a year ago. This new edition does not contain any material changes, these having been made in the second edition.

The paragraph on Trench Fever has been rewritten so that it covers the work of the English and American Commissions which quite clearly showed the exact etiology of the disease and its clinical manifestations. In addition to minor changes in other paragraphs a plate of benign tertian, quartan and malignant tertian, malarial parasites has been appropriately added. An illustration of *D. andersoni* has been inserted in the paragraph on Rocky Mountain Fever.

This edition will undoubtedly be as popular as the former ones, which well indicates the value of the book.

OCCUPATIONAL THERAPY APPLIED TO RESTORATION OF FUNCTION OF DISABLED JOINTS. By Bird T. Baldwin, Major, S.C., U.S.A. Director of Occupational Therapy and Chief Psychologist Walter Reed General Hospital.§

This work is a preliminary report on the aim, scope and methods of one phase of occupational therapy as worked out inductively at the Walter Reed Memorial Hospital.

Occupational therapy is defined as a purposeful, remedial activity adapted to each particular case, and directly encouraging voluntary efforts and personal initiative on the part of the patient. The workshop type of therapy has an added value in that the patient constitutes a part of a social group and the product of his activities has an economic value, which is encouraging and inspiring to the patient.

MILK. By Paul G. Heineman, Ph.D., director of the laboratories of the United States Standard Serum Company, Woodworth, Wis.||

Despite the fact that the author does not claim to have treated the subject exhaustively, he must be given credit for producing the most complete and comprehensive volume on milk that has been published in the English language up to date.

The text might well be styled a so-called "Handbuch," for it contains most valuable and accurate information for all persons interested in milk, no matter what that interest might be, ranging from producer, inspector, on to consumer.

For the laboratory worker the text is of great value for the various chapters, which are excellently arranged, are quite complete from a historical standpoint, continuing through the physiology of lactation, physical and chemical properties of milk, and several chapters of bacteriological subjects relating to milk. A detailed description of the technical methods for the physical and chemical examination of milk are very clearly given. The author has judiciously selected the better methods and these are so described that the laboratory worker will have little difficulty in the interpretation and correlation of results.

The chapters of interest to bacteriologists are very complete, covering the sources and kinds of micro-organisms in milk, fermented milks, the bacteriological examination of milk and milk-borne infections. This latter chapter depicts in a rather decisive manner the various infections that are milk-borne, and shows their relative importance and rôle in daily health work and control. Methods for certifying, pasteurizing, and reducing the germ content of milk are also given.

The chapter on the control of milk supplies is quite

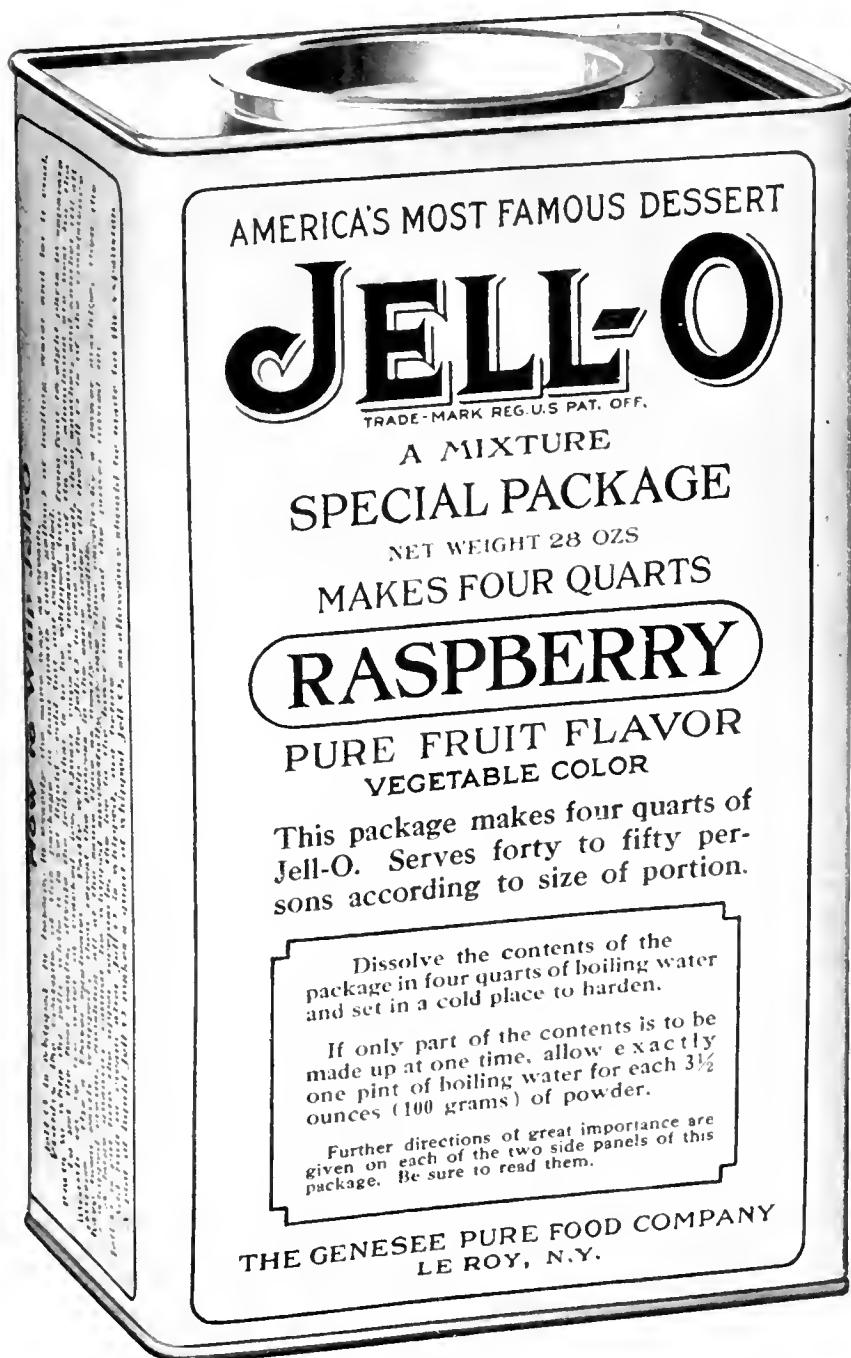
(Continued on Adv. Page 22)

*World Book Company, Yonkers-on-Hudson, N. Y., 1919, \$2.
†C. V. Mosby Company, St. Louis, 1918, \$1.25.

‡P. Blakiston's Son & Co., Philadelphia, 1919, \$2.50.

§Walter Reed Monograph, Walter Reed General Hospital, Takoma Park, Washington, D. C.

||W. B. Saunders Co., Philadelphia, \$6.



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BOOKS OF THE MONTH

(Continued from Page 740)

valuable for sanitarian, health officer, and laboratory worker, the last especially, for he can readily obtain an idea of the magnitude of work of this nature and better equip himself to be of the maximum aid in this rather difficult and trying phase of milk handling.

The chapters of interest to the producer, consumer, economist, and student are all of a nature that greatly enhances the value of the book. In fact, anyone having an interest in milk and its products will find the text to be most serviceable to them. Dr. Isaac C. Abt and Abraham Levinson have contributed a most valuable chapter on milk and its relation to the importance of infant feeding, which will be greatly appreciated by most readers.

The author has appended each chapter with a very representative bibliography and the text is profusely illustrated. The book has been so written as a result of the author's experience as a teacher and investigator, and contains such practical first hand knowledge that it well deserves to be in the possession of anyone having an interest in the subject of milk.

DISEASES OF OCCUPATION AND VOCATIONAL HYGIENE. By George M. Kober, M.D., LL.D., and William C. Hanson, M.D.*

When a book contains as much good material as is present in this volume, the reviewer should be satisfied with beginning and ending his review by the statement that it is an excellently well done and serviceable work. However, to do justice to this book it is only fair to state that it contains practically all that is known of this most interesting subject and that the contributions are by men of accepted reputation in the lines on which they write. The prefatory remarks give a brief historical review of the high lights in the development of interest in occupational and vocational diseases with a special division devoted to the progress of industrial hygiene in the United States. The aim of the editors has been the presentation of the basic data concerning the diseases of occupation in such a way as to render them available not only to physicians but also to employers, employees, efficiency experts, public health officers, and legislators. The book is divided into three general parts, dealing first with the specific and systematic diseases of occupation, second with the etiology and prophylaxis of occupational diseases, and, third, with the legislation and governmental study for the prevention of occupational diseases. The reader can look up lead poisoning, the method of preventing lead poisoning, and the legislative and other measures that have been framed to control lead poisoning. He can look up the dangers of any particular industry. He can study the health of women wage earners. He can get the symptoms of any form of poisoning. In fact, he can get almost everything he wants from this book.

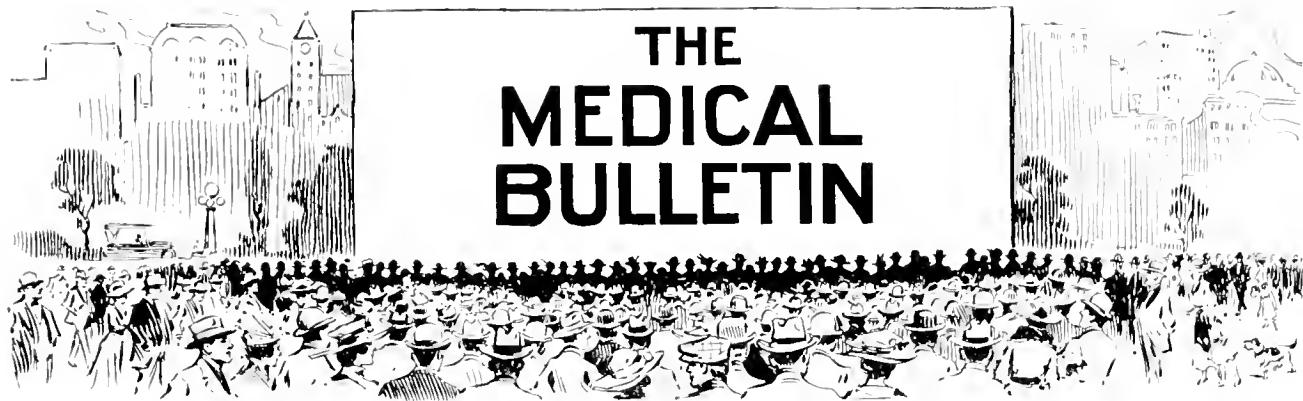
MENDERS OF THE MAIMED. The Anatomical and Physiological Principles Underlying the Treatment of Injuries to Muscles, Nerves, Bones, and Joints. By Arthur Keith, M.D., F.R.C.S., LL.D.†

Keith, in his delightful book, "Menders of the Maimed," has endeavored to re-state the principles upon which our knowledge of orthopedics is based. He has presented these principles from an historic aspect. The book contains biographical sketches of John Hunter, H. O. Thomas, Mar-

(Continued on Page 24)

*P. Blakiston's Son & Co., Philadelphia, 1916, \$8.

†Oxford University Press, New York, 1919, \$6.50.



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BOOKS OF THE MONTH

(Continued from Page 22)

shall Hall, and others,—men who blazed the trails in orthopedic surgery. Each chapter describes, moreover, the manner in which the fundamental ideas in orthopedics have been developed. It pleases us to learn that John Belchier accidentally discovered the vital bone-staining properties of madder while dining at the home of a calico maker, who economically fed his pigs with the madder-stained bran of his dye works, and then fed his guests with these pigs. We are interested in seeing how Duhamel, John Hunter, and others used this discovery of Belchier to build up our present knowledge of osteogenesis. In a similar manner Keith describes the development of other modern theories and, also, of therapeutic procedures, such as tenotomy, tendon transplantation, bone grafting, etc.

He has frankly presented his subject from a British point of view, and hopes that this example may stimulate colleagues of other countries to do the same from their national viewpoint. We sincerely hope that some American writer may take up the challenge with as entertaining and interesting a result.

The book will please the lover of medical history, will interest not only the orthopedic surgeon but the general practitioner as well. The teacher will discover much that can be used in the class room, and the student will find in "Menders of the Maimed" an interesting and logical derivation of the broad principles of orthopedic surgery. Would that more scientific books were written in as interesting and scientific a style.

INDUSTRIAL NURSING for Industrial, Public Health and Pupil Nurses, and for Employees of Labor. By Florence Swift Wright, R.N., Bureau of Child Hygiene, New Jersey State Department of Health; Formerly Secretary of the Benefit Association of the Employees of John Wanamaker, New York; and formerly in charge of Industrial Nursing for both the Cheney Brothers Silk Mills and the Clark Thread Company.*

Procedures in industrial nursing must of necessity be flexible. Modification is required as each industry presents a separate problem, and future industrial and social development must be provided for. Certain standardizations, however, in methods, records, and equipments will make for efficiency.

In the preparation of this work Miss Wright has drawn upon the experience of many industrial and public health nurses and she has appended a list of the sources of information and a general bibliography which will be of great value to nurses in this field or to employers instituting nursing service. Usually a department of nursing is introduced into an industry for a specific purpose, and its scope depends upon the department in which it is engaged. This work indicates what need be looked for in personnel, and the possible scope of its activities.

Chapters are devoted to the development of industrial nursing; the qualifications and training of the industrial nurse; the principles of industrial nursing; the relations of the industrial nurse to her fellow workers, and to the community; the first aid nurse; the visiting nurse; and to details of equipment. Under "The Day's Work" and "Records and Reports" the basis of adequate records is discussed.

Where an industry is responsible for the growth and existence of a town, the activity of industrial nursing may be expanded to form what practically constitutes a nurs-

(Continued on Adv. Page 26)



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BOOKS OF THE MONTH

(Continued from Adv. Page 24)

ing center, in which event special training from the social viewpoint may be a requisite. Public Health work may be necessary; visiting nursing is desirable; pre-natal supervision, the industrial day nursery, mother clubs, and instruction in home problems may well be included in the work. The necessity is pointed out of supervision when the work of two or more nurses is definite and distinct. The work should be planned, and one person should direct all nursing and allied activities. The service may be so planned, and methods standardized as to be practically unaffected by changes of personnel.

FORCED MOVEMENTS, TROPISMS, AND ANIMAL CONDUCT. By Jacques Loeb, M.D., Ph.D., Sc.D., member of the Rockefeller Institute for Medical Research.*

Loeb undertakes in this book an analysis of the mechanism of voluntary actions on the assumption that all these motions are determined by internal or external forces. Motions caused by light or other agencies may appear to be an expression of will and purpose on the part of the animal, but in reality consist of "forced movements," according to Loeb. Forced orientation by outside sources of energy is called tropism; hence forced movements are designated "the tropism theory of animal conduct."

In the first three chapters Loeb re-states his well known theory. Succeeding chapters report further experimentation, mainly with lower animal forms. Seven different types of such movements are discussed, his greatest emphasis being placed upon heliotropism.

The chief importance of this contribution is the mechanical basis his work argues which would classify the wonder and mystery of instinct as an acquired instead of an hereditary trait.

"The theory of tropisms," he says, "is at the same time the theory of instincts if due consideration is given to the role of hormones in producing certain tropisms and suppressing others." Even the manifestations of associative memory he explains from the viewpoint of the physicist rather than that of the psychiatrist. "The influence of an associative memory is exactly measurable," he says, and, moreover, "what we call a memory image is not a 'spiritual' but a physical agency. We therefore need not be surprised to find that such memory images or 'conditioned reflexes' can vary and multiply the number of possible tropistic reactions." These interpretations are of the utmost importance to psychology. They are not in accord with the generally accepted view among scientists as to the inherited nature of the instincts, and call for a systematic analysis of instinctive reactions from the viewpoint of the theory of tropisms.

DYNAMIC EVOLUTION. A study of the Causes of Evolution and Degeneracy. By Casper L. Redfield.†

The mere fact of heredity by successive stages does not explain to Redfield how human intelligence was derived from man's ancestry nor man's increase in dynamic power. These differences he attributes to energy potentials and assumes that work done may produce accumulated energy which may be transmitted.

The power of trotting horses to "breed on" he considers due to the fact that accumulations of energy persist through several generations. Animal energy behaves

(Continued on Adv. Page 28)

*J. B. Lippincott Company, Philadelphia, 1918, \$2.50.

†G. P. Putnam's Sons, New York, 1914, \$1.50.

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Public Health Officials and Welfare Workers have already accomplished splendid results in spreading the gospel of pure air, proper housing and improved working conditions for workers everywhere. Their work is now being further supplemented by

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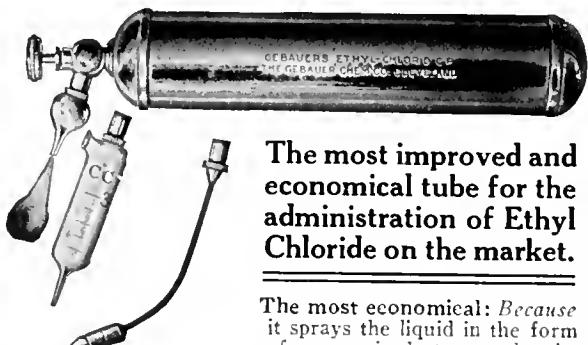


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BOOKS OF THE MONTH

(Continued from Adv. Page 26)

in concentration and dissipation in a manner similar to heat and electricity, and he considers it highly probable that, in the same way they have been evolved for heat and electricity formulas for energy potentials may be constructed, which can be applied to different animals in a pedigree. His studies are made from pronounced and well recorded illustrations in trotting horses.

In men he investigated the form of energy which produces mental power and mental characteristics. By dividing a large group of intellects into groups by the ages of their fathers, the group represented a graduated scale, the intellectual grade of the children representing the intellectual grade of the parents at the time the children were conceived. The average age of the fathers of the especially great men from different countries and of different races, was approximately fifty-five years, from which he deduces that work done stores accumulated energy which may become an ordinary character and be transmitted. "If successive generations are active, then that activity concentrates in proportion to the degrees of activity and the length of time employed, and we have steadily increasing mental power, as in man. . . . The same processes are in operation today, and a knowledge of what they are and how they operate will enable him to utilize them as he will."

All of which is an interesting theory and makes fascinating reading but it involves the transmission of acquired characteristics, and hence cannot be considered good biology.

THOUGHTS OF A PSYCHIATRIST ON THE WAR AND AFTER. By William A. White, Superintendent St. Elizabeth's Hospital, Washington, D. C.*

Recent years have seen the evolution of psychiatry from the treatment of the limited concept insanity to its application in the restoration of imbalances of the personality make-up and defects in adjustment. In this book the psychiatrist has sought for the psychologic principles involved in the personal and social readjustments necessary after the great war. Mankind has not changed over night, he says, and the beginning of these changes have for years been taking root all about us and reach in their origin to instinctive springs of human conduct.

He draws a very complete analogy between the psychologic traits and the psychic evolution of the individual and the psychic reactions of the social group.

The human animal has certain fundamental instincts which it spends its life endeavoring to satisfy. The individual is said to be integrated when each instinct or activity is properly subordinated to the service of the whole organism. "When any one instinct is enabled, for any reason, to gain the mastery of the whole organism, so that it dominates its activities, that individual is sick. . . . It is the same with the social organism."

If any single group comes to dominate the activities of the whole social organism, it, too, would be sick. An exceedingly important aspect of the process of integration is that integration in itself is a process of development, and failure of integration is an indication of relative immaturity. All forms of abnormal or antisocial conduct we are coming to see as ways of expressing instincts which are relatively undeveloped. They are subject to repression or diversion into channels which are socially useful. We must learn to see individuals, races, species as but reactions of adaptations, more or less successfully

(Continued on Adv. Page 30)

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3219

BOOKS OF THE MONTH

(Continued from Adv. Page 28)

integrated, to meet the problems which have confronted them.

Societies have become more and more complex. The interdependence of the several groups has been recognized and each properly subordinated to the interest of the whole; but in war time all those instincts and impulses of a self-seeking nature which ordinarily are repressed or held in check by the group are uncovered and become operative. Neuroses which in peace are crippling only to the individual lead to overt acts of concrete indulgence. Reason seems temporarily dethroned and pure feeling, emotion, takes its place as the motive force of conduct. Hate, fear, and other repressive traits constitute the emotional reactions of war.

He goes on to analyze from the viewpoint of the psychiatrist the causes of war and the various factors at work as a result of the war which make for a democracy of equal opportunity. The mutual distrust of men in different walks of life based upon their ignorance of each other tends to disappear.

The ever present conflict is between socialism and individualism. A reaction to either extreme is destructive. A compromise,—rationalization,—must be effected. It is the great opportunity to turn these enormous energies into channels which shall effect constructive ends, into activities which shall be useful in the largest sense. Certain attitudes of mind must be modified. Hate is far more destructive to those who indulge in it than to those upon whom its force is expended. When men can realize that they all are after the same things, that growth is in the same general direction for all, they will come to realize that they can better effect their several purposes by pooling their interests than by insisting too strongly upon individual recognition. The difficulties of adjustment are stupendous. New standards must be formulated, higher integrations evolved, and a better coordination of activities achieved for the common good of all.

THE FUTURE OF MEDICINE. By Sir James Mackenzie, F.R.S., M.D., F.R.C.P., LLD.AB. & Ed., F.R.C.P.L., (Hon.) Consulting Physician to the London Hospital.*

The whole book is an argument for a more scientific basis of medical research, a warning against certain present tendencies to place implicit trust in mechanical laboratory methods, to the neglect of the subjective symptoms, and is a plea for the consistent training of the clinician who ties up the physical findings with the actual observation of the patient so as to assess the real value of any given symptom.

With the premise that "if a problem is to be solved the nature of the problem and its difficulties should first be comprehended," Mackenzie undertakes a review of the medical situation as it stands today.

"Medicine has advanced so far," he says, "that for the study of disease after the patient has died, we find institutions magnificently equipped, presided over by men of great experience and training; for patients suffering from the advanced stages of disease, we have great hospitals, with staffs of skilled physicians, surgeons, and specialists. If we seek to find out what are the facilities for the detection and cure of disease in the stage when it has not damaged the tissues, we discover that little consideration is given to this aspect of the matter. . . . Few or no attempts are made to train men for the detection of disease when there is hope for cure." The surgeon, accord-

(Continued on Adv. Page 32)



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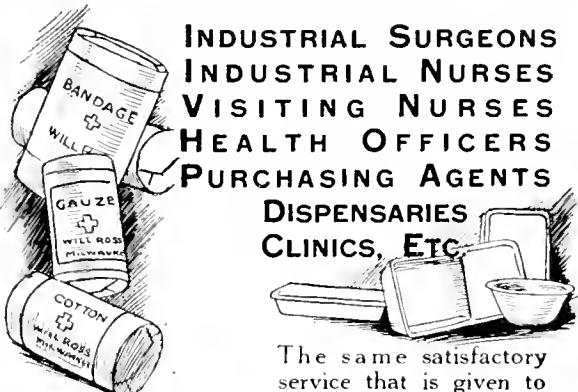
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BOOKS OF THE MONTH

(Continued from Adv. Page 30)

ing to his thesis, may be said to flourish on the failures of the clinician.

Graphic comparison is made between the causes for which 1,000 consecutive patients sought medical advice and the causes of deaths in England and Wales in 1912. Evidently the diseases that weaken the community are not those of which the people die. "The progress of medicine has had little effect in preventing the occurrence of the most common diseases." To achieve the aim of medicine, disease must be recognized early, and all phases of its life history must be observed. Manifestly the only person who can do this is the general practitioner.

The complaint is made of medical education that it has an imperfect conception of the aim of medicine. The student is trained in methods needlessly complex. The dominant idea today leads one to depend upon the revelations by some mechanical contrivance devised in the laboratory of the signs of disease which can be detected only by the trained senses of a skilled examiner. The idea of specialism dominant today darkens the understanding with a cloud of detail and under this conception the vast bulk of suffering humanity can never get adequate attention.

The next thing the discoverer of a mechanical device has to do after he has recognized its use in clinical medicine is to get rid of it in practice and by research, according to the "Law of Associated Phenomena" the immediate objects are to discover (1) the mechanism of the production of a symptom, and (2) the determination of what bearing its cause has on the patient's future.

Application of these principles is made to the clinical researches of the author in affections of the circulatory system. As well qualified as any at the outset of his medical career, he soon found himself unable to recognize the maladies in many of his patients. In the main they presented no gross physical signs, and he was unable to appreciate the subjective symptoms, and for most of these problems he found no help in the literature. Details of a systematic investigation of the patients' sensations are set out in chapters on "The Investigation of Pain," "Irregular Heart Action," "Auricular Fibrillation," and "Observation on the Effect of Drugs," work which constitutes the basis for accepted procedures in heart conditions.

Generalizations from these special studies are drawn in succeeding chapters which suggest similar principles of research in other fields. The book is a very thoughtful consideration of many phases of the practice of medicine. Without incriminating any one person or any school, he holds that present conceptions of medicine are subject to revision if medicine is to evolve as a precise science.

The work reported is of the utmost value. When all is said, the method is the man. The man whose interest in his work and concern for his patient leads him consistently over a period of twenty years to amass records, train his sense perception, and correlate findings is the man upon whose clinical judgment it is safe to rely, and the type of general "practitioner" and "teacher" too rarely encountered. In the hands of such men the "Future of Medicine" may be safely entrusted.

Favorable Health Statistics

The health statistics of the principal cities of the United States and for the leading insurance companies show that the mortality has been lower and health conditions have been more favorable during the past summer than during any corresponding period in recent years.

THE PREVENTION OF THROAT IRRITATION

IN these momentous days when public speaking is so general among thoughtful people, medical men have been quick to recognize the value of a good, pure chewing gum for alleviating the dry mouth and irritable throat that cause so much discomfort and annoyance to the majority of speakers.

Practical experience has shown that chewing gum not only exercises all the muscles of the mouth and throat, making them extremely flexible and responsive, but it also stimulates a natural flow of saliva, thus soothing the throat and keeping the mouth from becoming dry and parched.

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Every pupil's requirements are studied individually, and each is directed according to her needs and her strength.

This cooperative work with the medical profession is giving results highly gratifying to both physicians and patients.

I shall be glad to assist you with patients who need conditioning through exercise, diet, breathing, correct poise, relaxation, reduction of flesh, or building of flesh.



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COMMITTEE AIDS CHILD PARALYTICS

The New York Committee on the After Care of Infantile Paralysis Cases states in its annual report that it took care of 8,253 cases during the past year. All have shown great improvement and many have been permanently cured. A survey now under way indicates the necessity of complete records of cripples, additional clinics, increased means for transportation, and the development of field agencies to help those in need of orthopedic assistance.

Military Surgeons Elect Officers

Officers chosen by the Association of Military Surgeons of the United States at its annual meeting in St. Louis, October 13 to 15, are: president, Lieut. Col. Joseph A. Hall, M.C., O.N.G., Cincinnati; vice-presidents, Assistant Surgeon General John W. Kerr, U.S.P.H.S., Washington, D. C.; Capt. Frank L. Pleadwell, M.C., United States Navy, Washington, D. C.; secretary-treasurer-editor, Col. James Robb Church, M.C., United States Army, Washington, D. C. The next meeting will be held at New Orleans the three days immediately preceding the meeting of the American Medical Association.

THE AMERICAN JOURNAL OF NURSING

In the November issue of the *American Journal of Nursing* the members of the nursing profession are criticized editorially for inertia in matters vitally concerning their work. Nursing organizations are charged with leaving discussions and decisions to other hospital officials, without adequate activity on their own part. The rank and file of nurses are urged to rise to their present opportunities.

The nursing question is a most absorbing topic, their training, the situation in New York, and rank for nurses, forming the basis for editorial comment. In the same journal Isabel M. Stewart, R.N., discusses the readjustment necessary in the training school curriculum to meet the demands of public health nursing. She considers that such additional courses should be limited to those who show fitness and who intend to follow public health work for a year or two. The hospital should concentrate more on what the public health nurse needs, and ward teachers should emphasize ward experience. The whole matter is to be the subject of a special study by the Rockefeller Foundation.

Social work on the part of a nurse in China is emphasized by Nina D. Gage in an article on "Stages of Nursing in China." As sickness is considered by the Chinese as one form of punishment for sin, even nursing care may be considered as interfering with Divine plans.

The tie-up between nursing care and religion was not easily broken for the early English hospitals were evangelistic and the same deaconesses nursed, cared for orphans and prisoners, and did evangelistic work. The regeneration of nursing in China came from physicians, and the first nursing schools were established by women physicians in 1873. The progress of the profession is traced to the present time, and its needs urged upon the nurses of America.

Other articles are: "Standard Curriculum," by Isabel M. Stewart, R.N.; "What a Nurse Should Know About Syphilis," by Herman Goodman, B.S., M.D.; "Enlarged Thymus Gland in Infants," by Constance Bull, R.N.; "The Need for More Tuberculosis Nurses," by Mary A. Isenberg, R.N.; "Mobile Hospital No. 1 in France," by Ida M. Anderson, R.N.; and "Student Body Government," by Clara C. Rue.

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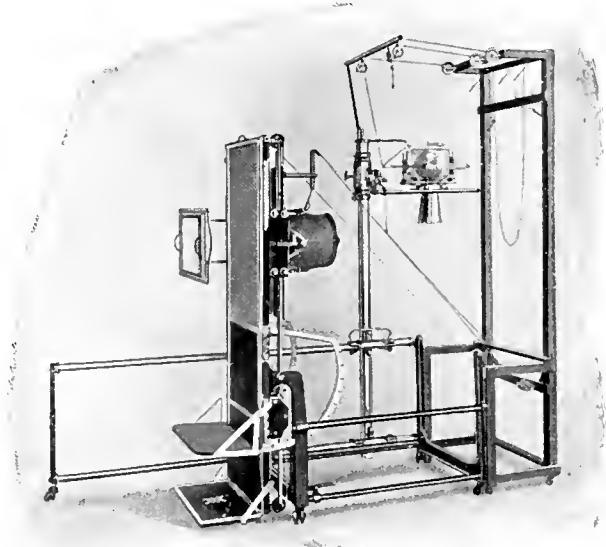
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Only a spoonful to a pail of water—that's the proportion for general uses. A 5-lb. package lasts a long time and does a lot of work.

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AMERICAN SOCIOLOGICAL SOCIETY MEETS IN CHICAGO

The annual meeting of the American Sociological Society will be held in Chicago, December 29 to 31, 1919, in conjunction with the meetings of the American Economic Association, the American Statistical Association, and other organizations.

The general subject for discussion at the annual meeting will be the problems of democracy. The meetings will be devoted to addresses, papers, and discussions of democracy in its various angles of contact and their purpose will be an attempt to establish a program for the realization of a working democracy in the world, particularly in the United States.

NEW JERSEY SANITARIANS MEET

The forty-fifth annual meeting of the New Jersey Sanitary Association was held at The Laurel-in-the-Pines, Lakewood, N.J., December 5 and 6.

One of the important subjects taken up was an address on "The Underlying Causes of the Narcotic Habit," by Alexander Lambert, M.D., New York, President of the American Medical Association.¹

Public health occupied a prominent place on the program, one of the topics being "The Future of Public Health Legislation in New Jersey," and another, the "Development of Public Health Nursing During the War and Reconstruction Periods." Other subjects discussed were "The Application of Rehabilitation Methods from War to Civil Life," "Milk Control."

CHICAGO HAS NUTRITION CLINIC

The Institute on the Nutritional Problems of Children, given in Chicago, Nov. 10 to 22, 1919, under the auspices of the Elizabeth McCormick Memorial Fund, was received with great enthusiasm and serious thought.

Dr. Wm. R. P. Emerson, M.D., of Boston, and his head chief clinical director, Miss Mabel Skilton, conducted a class for the student nutrition worker to prepare these workers to go into this branch of modern medicine. The intensive two weeks' program included class work daily training the student to keep daily diets for the children in the various schools where such clinics are held.

Class discussions included: (1) description of a nutrition clinic and class; (2) identification of malnourished child; (3) physical, mental, and social examinations and history record; (4) class procedures and methods; (5) cooperation at home and school; and (6) the nutrition worker.

Doctor Emerson followed the work by giving physical examinations and lectures to the various groups of people,—teachers of home economics, social service workers, nurses, welfare workers, the pediatric society, the Chicago Medical Society, the Woman's Medical Society, and various other gatherings.

This work has brought to the minds of many of the people doing social work the fact that the malnourished child must be taken care of from the same standpoint as the child that has various other diseases. The students represented many branches of work. The physician, the welfare nurse, field dietitians doing social service dietetics in clinics, hospital dietitians, nurses in child-caring institutions, and visiting housekeepers, were represented.

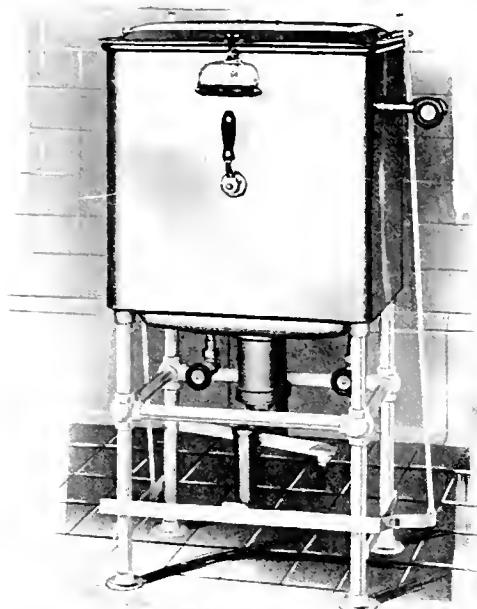
A program to be carried out in various dispensaries of Chicago as the direct outcome of this course given here will be reported in future issues of MODERN MEDICINE.

¹ This article will be published in an early issue of MODERN MEDICINE.

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Bed-Pan Sterilizer and Washer
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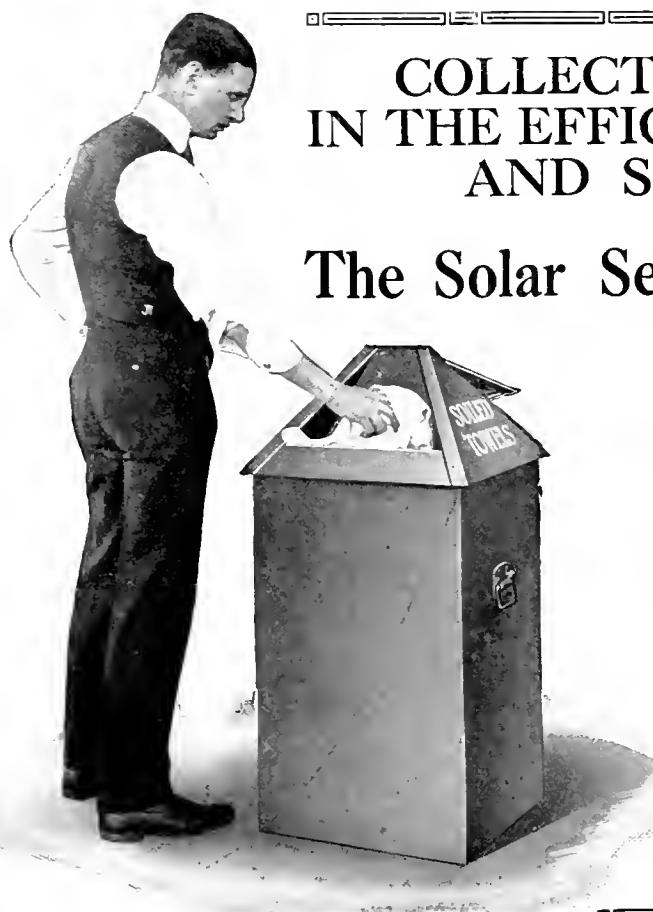
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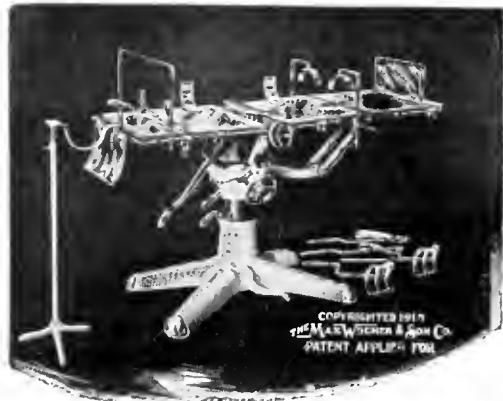
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Literature sent upon request

AMERICAN CHILD HYGIENE ASSOCIATION

The Tenth Annual Meeting of the American Child Hygiene Association which was held at Asheville, N. C., November 11 to 13, 1919, was a conference between representative workers in child welfare all over the United States, and was characterized by an intensive study of the special problems involved.

Maternity problems and prenatal care came up first for consideration. The relationship between the decrease in the general death rate and the special death rate in children under one year, on the one hand, and the stationary position of the infant death rate during the first few weeks of life, Dr. Merrill E. Champion considers a matter of the greatest concern for public health officials. He believes that some sort of maternity benefit would aid in reducing infant and maternal mortality.

The symposium on infant feeding was led by Dr. J. P. Sedgwick, of Minneapolis. That it is the task of the expert to think out the problem of help in the home for the mother with a young baby, was the dictum of Dr. Helen MacMurchy of Toronto. The organization of the home is the concern of the state, she says, and it is quite possible to change the occupation of the homewoker into a new and attractive profession for women.

A historic perspective of child hygiene campaigns by Dr. John A. Foote, Washington, D. C., gave evidence of lay interest in legal enactments of this character in the second century. Popular treatises on matters of child hygiene by Soranus, of Ephesus, lack little of modern interest. Anius Qellius argued in the second century in Rome for maternal nursing; but all traces of altruistic work were lost in the bloody years after Marcus Aurelius.

Reports of activities were made by Sara B. Price, superintendent Child Welfare Society, Chicago, from the viewpoint of the city. Rural service was discussed by Virginia Knox Kimble, state supervisor of nurses, Topeka.

The work in nursing and health of the university extension service, Columbia, Mo., was the subject of the discussion led by Mrs. Louis Selbert, of the University of Missouri.

Government work in England and Scotland for children of pre-school age was shown by Dr. Wm. Palmer Lucas, San Francisco, chief of the Children's Bureau of the American Red Cross in France, to provide day and night nurseries for workers. The medical supervision of the health of all children under five was assumed by the Public Health Authority. Toddlers' play grounds and wards for ailing children were included in the health center activities.

Correctable defects under six years of age and suggestions for follow-up work as indicated in San Francisco formed the basis of the contribution by Dr. Adelaide Brown.

Nor was the health significance of developmental traits of character overlooked. P. A. Surgeon Walter L. Treadway, United States Public Health Service, Washington, D. C., urged psychiatric analysis of the whole personality and development as the rational basis of the new preventive medicine.

Under specific problems in rural districts, the following topics were treated:

Rural, Dental, and Surgical Clinics. Dr. George M. Cooper, Director, Bureau Medical Inspection of Schools, North Carolina State Board of Health, Raleigh. Opportunities of the Rural Public Health Nurse for Developing Child Hygiene. Mrs. Ruth A. Dodd, South Carolina State Board of Health, Columbia. The Minnesota Rural Clinics. Dr. E. J. Hueneckens, Minneapolis.



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BOSTON HAS BABY HYGIENE EXPERTS

The work of the Boston Baby Hygiene Association which cared for 7,000 children during the past year at twenty stations in various parts of the city was the basis of considerable study and discussion at the tenth annual meeting of the American Child Hygiene Association at Asheville, N. C., in November. In recognition of its splendid work, six Boston physicians and four Boston women were assigned prominent parts in the conference.

JOURNAL OF DENTAL RESEARCH

The September number of the *Journal of Dental Research* testifies to the awakening of interest on the part of physicians in dental problems. There was a time, and that time is not so very long ago, when the dental profession was entirely divorced from the medical profession. The dentist considered himself a specialist in an isolated part of the human body, which has no connection with any other parts of the organism. The physician, on the other hand, considered the dentist a mere mechanician, who cements decayed pulps, and pulls diseased roots. Times have changed. The dentist realized that the teeth are only a part of a complex organism, and that it behooves the man who is concerned with the ailments of human teeth to study also the ailments of other parts of the body. The physician also broadened his scope of thought in connection with dentistry. He realized that the teeth may and do influence other parts of the human body, and it is a mistake to leave the osseous part of the buccal cavity out of consideration.

This interchange of interests is strongly noticeable in the third number of the *Journal of Dental Research*. Both physicians and dentists meet on common ground. Of considerable interest is the article by E. E. Rosenow on elective localization of bacteria. As is well known, Rosenow has for years promulgated the idea that certain bacteria show preference for certain parts of the body. In this paper, Rosenow applies his work to dental foci, and shows that with more delicate methods it can be demonstrated that bacteria from dental foci of infection localize in certain parts of the body and set up various lesions in those parts. These observations lead him to a number of practical suggestions. The wholesale devitalization of teeth, and the filling of infected root canals without due regard to asepsis, according to Rosenow's research, result in the formation of apical infections and in much ill health. Of still greater clinical importance is the conclusion reached by Rosenow that "Tonsillectomy as now so commonly practised before the condition of the teeth has been corrected is illogical. The lymphatics of the mouth and jaws drain into the tonsils. Some infections of tonsils improve or even disappear following the extraction of infected teeth." This advice is of vital importance in view of the general practice of removing hypertrophied tonsils without taking into consideration the source of infection causing the enlargement of the tonsils.

An interesting contribution in the same issue is that of H. A. Cotton, who was able to trace mental disturbances to infected or impacted teeth. He cites cases of patients that came under his observation, with marked mental symptoms, and whose minds cleared up after the offending focus of infection was removed from the teeth. This opens a new line of thought in psychiatry, a field that is well worth investigating.

The Journal contains several more interesting contributions that are of value to the physician and dentist alike. If the *Journal* continues to present such interesting material, the gap between the physician and dentist will soon be bridged over.

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The School of Occupational Therapy, the only institution of its kind in the state of Pennsylvania, opened October 19, in Philadelphia. Its purpose is the training of aides in the new profession of "healing by occupation." There are courses in weaving, stenciling, block printing, modeling, book-binding, wood carving, toy making, and basketry.

Through cooperation with the Philadelphia General and the Pennsylvania Hospitals the work in occupational therapy is supplemented by hospital training under skilled supervision and by a course of lectures by eminent physicians, surgeons, and psychologists.

THE SURVEY

The issue of *The Survey* under date of November 15 contains an analysis of the International Labor Conference by Wm. L. Chenery who considers that, notwithstanding the uneven acceptance of general rulings of existing organizations, a powerful influence for progress is indicated in the call of all governments before the bar of public opinion.

In "The Restoration of Civil Liberty," Richard Roberts states new tasks in defining and achieving that liberty which will enable every man to grow into his "full share of what is going on in life."

In the same issue are a report of findings of the International Congress of Women Physicians, an appraisal by Edward T. Devine of the Social Unit in Cincinnati, and a criticism of American prisons by Winthrop D. Lane.

BOOKS RECEIVED

THE CONTROL OF HUNGER IN HEALTH AND IN DISEASE. By Anton Julius Carlson. Cloth, \$vo., pp. 319, illustrated, \$2. The University of Chicago Press, Chicago, 1916.

DISEASES OF INFANTS AND CHILDREN. By Henry Dwight Chapin, A.M., M.D., professor of diseases of children, New York Post-Graduate School and Hospital; supervising physician of the children's department, New York Post-Graduate Hospital; consulting physician to the Willard Parker Hospital, etc.; and Godfrey Roger Pisek, M.D., Sc.D., professor of diseases of children and attending physician to the New York Post-Graduate Medical School and Hospital; professor of diseases of children, University of Vermont Medical College; visiting physician to the Willard Parker and Riverside Hospitals, etc. Cloth, \$vo., 4th Ed., revised, illustrated, pp. 592, \$4. William Wood & Co., New York, 1919.

THE MEDICAL RECORD VISITING LIST FOR 1920. The finest and most compact list published containing ready information on "Drops in a Fluid Drachm, of Different Liquids, and Under Different Conditions," "Solutions for Subcutaneous Injection," "Diagnostic Hints on Contagious Diseases," "Miscellaneous Facts," "Poisons and Their Antidotes," "Emergencies," "Artificial Respiration," "Signs of Death," etc. For 60 patients a week, \$1.75; for 30 patients a week, \$1.50; for 90 patients a week, \$2.25. William Wood & Co., 51 Fifth Avenue, New York City.

QUARTERLY MEDICAL CLINICS. A Series of Consecutive Clinical Demonstrations and Lectures. By Frank Smithies, M.D., F.A.C.P., associate professor of medicine, School of Medicine, University of Illinois; gastro-enterologist to Augustana Hospital; medical consultant to United States Marine Hospital; formerly gastro-enterologist at the Mayo Clinic; Fellow of the American Gastro-Enterological Association, etc. Augustana Hospital, Chicago. Paper, \$vo., pp. 408, illustrated, \$1.50. Medicine and Surgery Publishing Company, Inc., St. Louis, 1919.

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